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# Veterinary Medicine

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**D. M. Campbell, Editor** **A. T. Kinsley, Associate Editor**

Carbon tetrachlorid in 1 cc doses is said to control liver flukes in goats.

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Anti-rachitic properties in cow's milk is in part due to exposure of the cow to sunlight.

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The virus of rabies may occur in the saliva from 6 to 8 days before symptoms are manifested.

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A diet containing either hemoglobin, adrenalin or histamin has proved effective in the treatment of experimental animals affected with rickets.

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It has been demonstrated experimentally that a severed optic nerve of a rat can reunite and at least partially recover its function.—*Science.*

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A fatal disease of the grouse is quite prevalent in some areas and may ultimately be responsible for the extinction of these birds. The cause of this fatal malady has not been identified.

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Side branding diminishes the value of a hide one dollar. Over one million side branded cattle are sold to packers every year. The producer loses the million dollars which is equitable because he is responsible for the brand.

Excessive salivation in dogs as a result of medication with oil of chenopodium can be reduced to a minimum by administering the medicament in capsules.

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Dog lovers must be increasing in England. The number of dogs licensed in 1921 was 1,900,000; in 1926 the number was 2,800,000 — nearly one for every three households.—Our Dumb Animals.

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Is Abortion of common occurrence in bitches? Are bitches susceptible to infection with the *B. Abortus* Bang? These are questions of interest. VETERINARY MEDICINE will be glad to publish any observations of its readers on this subject.

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The expulsion of the larvae of the nasal fly of goats may in some cases be facilitated by blowing small quantities of snuff or pepper into the nasal chambers. This treatment, although effective in some cases, usually produces severe rhinitis.

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Ovine infectious necrotic hepatitis is widespread in Australia. The disease is of bacterial origin and occurs most frequently in lambs six to nine months of age. This disease is similar to braxy. The principal lesions are necrotic centers in the liver. There is a possibility of this malady being introduced into this country.

Sixty cubic centimeters of serum will vaccinate three or four pigs six weeks old, but it will take the whole sixty to save one half-grown hog from cholera next September or October. When the double treatment is given shortly before or after weaning, the expense should be less than five per cent of the value of next winter's fat hog. If treatment is delayed four months, the expense will be 10 or 15 per cent of the final market value of the animal. This is reason enough to warrant early vaccination, but there are other reasons just as strong.—*Wallaces' Farmer.*

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Farmers who have treated their hogs regularly year after year have learned the advantage of treating against cholera before weaning. This is most certainly a money-saving and risk-reducing method when the pigs are not weaned until three months of age, or thereabouts, as is the rather general practice among hog raisers at the present time.

It is a considerable help toward making a quick recovery and getting back to normal gains and condition for the pigs to be enabled to receive their mother's milk as well as plenty of grain supplements, minerals and pasture when they are treated.—*Wallaces' Farmer.*

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The man who is giving the "shots" (vaccinating hogs for the prevention of hog cholera), should know his business; he should know enough about cholera immunity and treatment so that he really understands what he is doing. He should not be merely a blind follower of printed instructions. He should understand the importance of proper sanitary conditions and see that these are secured. Carelessness and dirtiness when vaccinating and afterwards are generally costly. —*Wallaces' Farmer.*

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I can do no better, therefore, than to urge the farmer not to take unnecessary risks but to vaccinate the spring pigs before they are weaned or as soon thereafter as possible. There is no need of losing hogs from cholera any more and everybody knows it, but in spite of that, not over 20 per cent of the pigs raised in the corn belt are vaccinated and some claim that this figure should be placed at 15 per cent. Furthermore, only 60 per cent of the total number of hogs vaccinated are vaccinated as pigs; the other 40 per cent are vaccinated as a result of cholera scares. — John Thompson, Editor, *Iowa Homestead.*

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Why not regard vaccination as insurance? It is cheap insurance. It is important to take steps to protect every spring pig against cholera at this time.—John Thompson, Editor, *Iowa Homestead.*

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Since the discovery of how to immunize hogs against clolera this disease has not been the menace to the hog producer that it was a few years ago. If all pigs were immunized by the simultaneous method of vaccination with virus and serum, cholera would soon become unknown, but, on account of the expense connected therewith, as soon as the disease is under control in a community, men neglect to vaccinate. Sooner or later another outbreak appears, a few herds are lost and once more vaccination becomes general in the infected community. I urge everyone to vaccinate.—John Thompson, Editor, *Iowa Homestead.*

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Vaccination of pigs is relatively inexpensive. If the job is deferred until the pigs weigh 125 to 150 pounds the cost will be materially increased and there is a possibility of a big loss before it is done. Some farmers vaccinate their pigs a week or so before they are weaned and according to tests made at the Iowa Experiment Station that is all right. On the other hand there are some who claim that pigs vaccinated before weaning are apt to lose their immunity, but if it is deferred until they have been weaned about a week the immunity is certain to be permanent. I do not believe that it makes much difference whether it is done a week before or a week after weaning; the main thing is to get it done even if it is a month after weaning.—John Thompson, Editor, *Iowa Homestead.*

# Some Advantageous Publicity

THERE seems to be an unanimity of opinion among veterinarians that the profession is not appreciated as much by the public as its services merit,—that because of its former association, in the public's mind, exclusively with services to horse owners, the need for veterinarians or for a veterinary profession is now popularly supposed to have diminished to just the extent that the functions of the horse have been replaced by mechanical power in the daily life of the average person.

The veterinary profession has signally failed to impress upon the public the importance of its services to the live stock industry which supplies a large part of the raw products out of which comes the food, clothing and many other necessities of the people of our nation. It has, in fact, for the most part failed to convey to the public the information that it renders any such service or that there exists any need for such a service. In the main, the services of the veterinary profession in safeguarding the wholesomeness of its meat and milk is not only entirely unappreciated, but wholly unknown to the general public. The services of the veterinary profession to the public health in holding in check diseases of animals communicable to man is as little known or appreciated by the public as are the other services it renders as public benefactors and as a necessary part of our scheme of civilization.

All this, of course, is bad for the veterinary profession and for the individuals comprising it. It is a bar to recruitment of the profession and a handicap to preferment of veterinarians. It makes easier the intrusion of agencies less qualified than veterinarians into the rightful field of the veterinary profession.

As one means of remedying this condition, inimical to the best interest of both the profession and the public various plans for "selling" the profession to the public have received the attention of veterinarians and veterinary organizations during recent years. The considerable that has been attempted to this end and the little that has been achieved have been told from month to month in these pages and need not be repeated here. Suffice to say that most of the plans advocated have been rather costly in time and money. It has remained for Dean White to launch a publicity plan that is at once, simple, effective, unobjectionable and without cost.

In sending out invitation to the veterinarians of the state to attend the third annual veterinary conference held in March at the College of Veterinary Medicine of the State University, a slip was included containing the following:

Dear Doctor:

If desired, you may use this notice in your local newspaper. If the notice is not just what you want, make up one of your own. It will be to your advantage, we think, to let your clients know through the public press why you are absent from your office during the conference dates.

D. S. White, Dean.

(*Tear off along this line*)

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Dr. ———— will be away from his office during March 21, 22, and 23, 1928, in Columbus, Ohio, attending the Veterinary Conference held by the Ohio State University, College of Veterinary Medicine, on these dates. The Conference is an intensive post-graduate course of veterinarians, arranged to give them in the shortest possible time the best and latest developments in the treatment, control, and eradication of the diseases of animals. The Conference will benefit the veterinarian and through him the livestock industry he serves. In fact the entire community will profit by the Doctor's short absence in order to attend this important Conference.

Having news value, this item was very generally published by the papers of the state. It connected veterinarians with the scientific prestige of the university, in the mind of the public, and the superior skill that is popularly associated with post-graduate training and reminded it of its needs for veterinary services in handling the diseases of animals. At the same time the dean put over some publicity for his institution. It won't make appropriations any harder to get from the state legislature to remind the general public occasionally of things that the

College of Veterinary Medicine is doing for it. Those but slightly acquainted with the dean who think he uses his headpiece principally for concocting inimitable stories for after-dinner and other speeches, are far from right in the matter.

Dean White's lead can be profitably followed by the promoters of other veterinary short courses and veterinary meetings.

## UNDULANT (MALTA) FEVER IN MAN FROM BOVINE ABORTION ORGANISMS

The public health aspects of abortion disease in cattle continues to attract much attention in medical, bacteriological and public health publications. Most veterianrians feel that the danger to man from drinking milk and consuming milk products from cows infected with contagious abortion organisms is exaggerated. A recent investigation in Iowa[1] would seem to indicate that the chance that consumers of milk contaminated by infectious abortion organisms may acquire undulant fever is greater than has heretofore been recognized. This and other investigations now under way may lead to wide-spread requirements that milk be pasteurized or if sold raw, be produced by abortion-free as well as tuberculosis-free herds.

Hardy, in the investigation referred to above, during a period of three months, subjected all samples of human blood sent to the Iowa State Hygienic Laboratories for the Widal test to the agglutionation test for undulant fever as well. The results were astonishing and most disquieting. Forty-one cases of typhoid fever were diagnosed and 38 cases of undulant fever. The undulant fever cases were later confirmed clinically and bacteriologically in 31 of these cases. The other cases were not followed up or they were too recent to have been confirmed at the time the report was written.

[1] Malta Fever: A Problem for State and Municipal Laboratories, by A. V. Hardy, M.B. (Tor.) Acting Assistant Surgeon, United States Public Health Service, Iowa State Epidemiologist, Acting Director Iowa State Laboratories, (U. S.) Public Health Reports, Vol. 43, No. 9, March 2, 1928.

The conclusion of this investigator is that undulant fever constitutes a health hazard in Iowa comparable to typhoid fever.

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The feeding of boars is an important factor in breeding efficiency. Barley and oats, either separately or combined, in equal parts supplemented with mangels or root crops constitute a splendid ration. A strictly corn diet will not give the best results.

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Tetanus in recently castrated pigs is relatively common, particularly if such pigs are permitted access to stagnant ponds and muddy pens. About 50 per cent recovery can be obtained by carefully dissecting away the tissues adjacent to the castration wound and providing sanitary surroundings.

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Parasites, external and internal, damage their hosts by mechanical injury, by direct abstraction of nutrition and the sucking of blood by elaborating and eliminating chemic substances that cause local irritation, hemolysis, and other injuries to the tissues, and by acting as carriers of microbian infection. Thus parasites are frequently responsible not only for unthriftiness and loss of flesh but also loss of life.

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Two of the wild tobaccos, *Nicotiana trigonophylla* and *N. attenuata,* growing over a wide area in the Southwest, are poisonous to live stock and are responsible for the death of range cattle and range horses from Texas to California, and as far north as Southern Colorado. A tolerance to these weeds is acquired by animals consuming sub-toxic quantities for a short time.

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In Maryland, on an average, 85% of the new outbreaks of cholera each year are caused by bones, rinds or scraps of infected pork fed to the animals in garbage, table scraps, kitchen swill, etc. If swine owners will use care, not only in preventing infected pork from reaching their hogs but in the purchase of new stock, hog cholera will be among those missing when the records for the year are compiled.—I. K. Atherton.

# Veterinary Education and the Cost of Veterinary Services

IN this issue, we present a second article by Major Van Allstyne supporting his contention that the campaign for higher educational requirements for veterinarians, that has had such enthusiastic support from most of us for the past 15 years, and which has met with marked success, has resulted in making the cost of veterinary services higher than a very considerable portion of farmers can afford to pay; thus in effect depriving such farmers of any veterinary service and at the same time, limiting the field of the veterinary profession.

Professor M. H. Reynolds[1] first called attention to a related subject when he stated that the number of veterinary students and ultimately the number of veterinarians will depend upon the relation of the cost of a veterinary education in time and money to the reward, monetary, social and political.

Those of our readers who are familiar with medical literature know that the increasing lack of medical service for small town and rural populations (where the reward is low) is a matter of great concern to the medical profession and to state and national health officials. This problem is but a variant of the one Major Van Allstyne is stressing and its cause is very generally laid to the same influences—the high standard of requirements for entering the medical profession and the consequent high cost.

An editorial on "Medical Education and Country Doctors" which appeared in a recent issue of the *Long Island Medical Journal* is apropos in this connection.

It begins to look as though the people who are suffering because of a lack of adequate medical service in rural districts were going to bring pressure to bear upon the medical authorities to do something for their relief.

The National Grange is the most powerful farmers' organization in the United States and is the official mouthpiece for hundreds of thousands of those who live on our farms and in our smaller towns. Large bodies move slowly; but when they get in motion they develop astonishing momentum.

At its last annual meeting, in November, 1927, the Grange sent a memorial, calling for help, to the House of Delegates of the American Medical Association. There was nothing hysterical about this document—it was very sane and reasonable—but it had a tone of firmness which sounded like business.

It called attention to the facts that, in 1924, there were 6,000 less physicians in rural districts than there were in 1906; that one-third of the towns of less than 1,000 inhabitants which had physicians in 1914 had none in 1925; that the average age of country doctors is now 52 years, while the average age at death is 62; that scores of counties have no physicians who have been graduated in the last 10 years; that the number of physicians in the United States is decreasing, while the population is increasing; and several other significant and ominous conditions.

These serious and hard-working people want just as good medical service as anyone has, and feel that they deserve it. They are under the impression that the reason they are not getting it is because medical education has been taken out of the hands of the 160 medical schools, which formerly existed (many of which were located in small cities and charged low fees), and concentrated in the 69 large colleges which are now functioning, many of which are heavily endowed with public money and most of which are expensive to attend.

It seems to them that medical curriculums have become topheavy with academic and technical instruction and with specialism, so that the time and expense required for gaining a medical education are shutting out many of the young people of small means whose tastes and early training would incline them to settle in the smaller communities.

Most of the exceptionally able and eminent men of the present generation of physicians went into medical school directly from high school, and spent four years in gaining their degrees—eight years from grammar school to practice. The great men who were our professional fathers and teachers spent even less time. Today it means high school, college, medical school and at least one year of interneship—thirteen years, out of the most active period of life, from grade school to diploma. Many question whether the extra five years is giving them doctors who are enough better equipped to care

[1] The Supply of Veterinary Students and of Veterinarians in the Near Future, by M. H. Reynolds, University Farm, Minnesota. Veterinary Medicine, Vol. XXII, No. 4, April 1927, p. 136.

for the lives and health of the people to make the extra expenditure of time, money and effort worth while. They wonder if a larger number of men, trained to meet the ordinary, daily emergencies of general practice, would not serve them better than will a smaller number of half-baked, would-be specialists.

Quietly and without any bluster, they suggest that, if the authorities now in charge of our centers of medical education are unable or unwilling to give them what they need, it may be necessary for the States to build and maintain, *strictly under public control*, medical schools which *will* supply their requirements.

This matter is worthy of deep and serious consideration by the people who have to do with the policies of our universities and other medical schools, if they desire to keep hold of the tiller of the great source of medical education. These citizens who, a few years ago, were jeeringly called "hicks" and "hayseeds," are among the most solid and thoughtful elements in our population. Their minds may not function with lightning-like celerity, but when they decide what it is that they really want, they are very likely to *have* it—if not today, then tomorrow.

*Something* is going to be done in medical education before long. The only question is, are *we* going to do it, of our own free will, or are we going to wait until we are forced to do something which may prove not to be so sound and wise as the plans we might have worked out if we had been less self-centered and complacent.

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The Wisconsin Supreme Court recently upheld an ordinance of the City of Milwaukee prohibiting the sale of milk except in original containers (City of Milwaukee vs. Childs Co., 217 N. W. 703).

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Since 1917 the United States Army has vaccinated approximately 5,000,000 members of its personnel for the prevention of small pox; the United States Navy has vaccinated approximately 1,000,000 members of its personnel and the United Public Health Service has vaccinated more than 3,000,000 persons in carrying out its quarantines, immigration and hospital work. In the same period well over 2,000,000 persons, including school children, were vaccinated by state and local health authorities in cooperation with the United States Public Health Service, making a grand total of nearly 12,000,000 vaccinations recorded by the Government Medical Services.

Farmers by supplanting horses by tractors for farm power, have destroyed their market for 250,000,000 bushels of grain and 11,000,000 tons of hay annually.

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A total of 20,098,272 cattle in more than 2 million herds are now under supervision for the eradication of tuberculosis. Nearly three-fourths the number of cattle are contained in herds which have successfully passed one or more tuberculin tests.

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The recent epidemic of typhoid fever in the City of Montreal cost that community several million dollars. Over 5,000 citizens, the bulk of whom were in the productive-age group, were rendered incapable of work for periods varying from two to six months. Nearly 500 of these people died. This represents a potential loss to the community in addition to the expenses incident to sickness and death. The entire trouble was apparently due to the faulty pasteurization of milk by one dairy.

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Herds accredited as free from tuberculosis, as the result of a series of tests, at the end of February, numbered 155,466, containing more than 2 million cattle. Counties which contain not more than one-half of 1 per cent of tuberculous cattle as a result of systematic testing number 464. In all these counties the few cattle which reacted to the latest test were removed from the herds and slaughtered. During February, 1928, 741,766 cattle were tested and nearly 18,000 reacted and were condemned as tuberculous.

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The fundamental principle of modern crop rotation is the outgrowth of over 3,000 years of practical experience in farming. By 1400 B.C. the advantage of letting fields lie fallow was recognized and promulgated in the Mosaic laws: "And six years thou shalt sow thy land, and gather in the fruits thereof; but the seventh, thou shall let it rest and lie still." 1500 years later, began the interspersing of winter and summer crops as wheat and barley. Another 1500 years saw the introduction of legumes grown in rotation with small grains.

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# Johne's Disease*

Johne's disease has been variously designated by different investigators, the name applied usually designating an important symptom or lesion of the malady. Thus, the disease has been designated as bacterial dysentery, paratuberculosis, chronic enteritis, enteritis paratuberculosis bovis specifica, etc.

The causative factor of Johne's Disease was first identified by Johne and Frothingham in 1895. They recognized the organism as being acid fast, and believed, at the time, that the organism was the cause of avian tuberculosis. Bang, in 1906, discovered that Johne's bacillus is different from the avian tuberculosis bacillus.

The economic importance of Johne's disease is difficult to estimate. It is known to exist in at least one-half of the states and has been demonstrated to occur in at least 32 counties in Wisconsin. The disease is far more prevalent than is usually recognized.

In one herd consisting of 25 pure-bred Jersey cows, 20 died of Johne's disease from 1910 to 1920. The mortality in many other herds has been equally great, thus the disease is of economic importance sufficient to be given careful consideration.

The cause of Johne's disease is an acid-fast bacterium. Little progress has been made in the study of this disease until 1910 when Twort devised a media upon which the Johne's bacillus could be successfully grown. Johne's bacillus approaches almost perfect parasitism. That is, it produces a chronic malady but permits its host to survive for many years and the bacillus itself is difficult to adapt to an artificial medium.

The principle symptoms manifested in cattle affected with Johne's disease usually consist of a periodic diarrhea, progressive emaciation, rough coat, etc. The appetite usually remains normal.

This malady occurs most frequently in cows after the first or second calf, although it has been observed in one suckling calf and in one ten-year-old cow.

Practitioners should bear in mind that some cases of Johne's disease do not show evidence of digestive derangement and in these cases diarrhea is extremely rare.

The tissue change which is found on autopsy of an animal dead of Johne's disease are relatively insignificant in comparison to the symptoms manifested. The most important lesion, although not always occurring, consists of a thickened, wrinkled mucosa of the ilium and in some instances of the cecum. The related lympth glands are usually tumefied.

The organism causing Johne's disease is usually eliminated in the feces. In fact, it is usually accepted that diseased animals are more or less constant spreaders of the infection.

The diagnosis of this disease has been extremely difficult because laboratory animals are not susceptible to the infection. The use of cattle is too expensive and should they be used, it requires six or eight months to obtain results. The organism is extremely difficult to grow, hence culturing from suspected individuals is of little value as a means of diagnosis. Sometime ago it was suggested that avian tuberculin produced reactions in animals affected with Johne's disease and such seems to be the case, but this product is reliable in only a relatively small percentage of cases.

Recently it has been possible to grow the Johne's bacillus and prepare Johnin, an agent that corresponds to tuberculin. This product is being used with apparently fair success in the diagnosis of Johne's disease.

The test is applied by an intravenous

*Excerpts by A. T. Kinsley from a discussion by R. A. Beach, at the 31st annual meeting of the Minnesota State Veterinary Society, Minneapolis; January 12-13, 1928.

injection of Johnin, the reaction consisting of a rise in temperature. The temperature ranging from 104° to 108° F. This rise in temperature usually becomes evident three to five hours after the injection of Johnin, and persists until about the 8th or 10th hour. In making the test, it is advisable to obtain at least one pre-injection temperature. Inject the Johnin and begin at once to take the temperatures every two hours until ten or twelve hours after the injection.

The principle thing to observe in making the Johnin test, is to see that the Johnin is injected intravenously, otherwise the reaction will be inconsistent.

In addition to the rise in temperature, in a few instances there are systemic disturbances consisting of trembling and possibly also diarrhea.

Some advanced cases of the disease will not give a reaction. The reliability of this test is still to be determined. However of 30 reacting animals that have been slaughtered, 29 showed diagnostic symptoms of the disease.

The rate of spread of the disease is evidenced in one herd, in which 45 head of cattle were taken out of the herd from 1910 to 1920. Another instance was three pure-bred Jersey heifers purchased in 1910. One of these died of Johne's disease in 1911, a second one died in 1912, and one of the native animals on the farm developed the disease and died in 1913. From 1910 to 1920, twenty animals died of Johne's disease in this herd, which at no time contained more than 25 head.

No treatment has been found that is reliable for controlling Johne's disease. Some have advised the use of chaulmoogra oil. One cow was given 10cc. of chaulmoogra oil for two years, and ultimately died of the disease. Further than this, little can be offered at this time in the treatment of this malady.

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The average distance travelled daily by cattle on the range in Texas, according to Cory, was 3.3 miles. On similar range, goats travelled six miles daily.

## "SWINGING" A SUCCESSFUL TREATMENT FOR CONVULSIONS IN DOGS

I have had gratifying success with a very simple procedure for bringing dogs out of fits. I refer to fits brought on by worms in the intestinal tract of puppies.

The first dog I tried it on was a Collie, four months old, which, when food was given, immediately developed a fit. The first symptom was a raising of the head and champing of the jaws, followed in a few seconds by falling down. The animal would remain in a fit for a few minutes and then gradually recover, but would be dull for half an hour or so. Other fits would follow at varying intervals, but one could always be produced by giving the animal food.

If, when the jaws begin to champ, the animal is raised by the elbows and swung backwards and forwards between one's legs or sideways for about half a minute, the fit immediately stops. This is such a simple treatment that it is probably very old, but I have never heard of it or seen it in print. I have only had an opportunity of trying it on three cases, but as it was successful with me in these cases, I thought it might prove interesting to others.

This is the only way I know of for quickly stopping such fits, but of course the result is only temporary, as a vermicide brings about a cure.—H. T. Ryan, F.R.C.V.S., in *The Veterinary Record.*

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Swine usually thrive on alfalfa pasture, however an occasional field of alfalfa seems to be of little value for feed as swine do not thrive on it unless provided with other feed or changed onto other alfalfa. Cattle cannot be pastured on some alfalfa fields because of uncontrollable bloat. However, other fields can be pastured without danger of bloat.

Is this variation in alfalfa as swine food and in the case of bloat in cattle due to a variation in the chemical composition of the plant? It has been observed that the alfalfa plant forms no tubercles excepting in inoculated soil.

# Diseases of Young Calves

## White Scours

WHITE SCOURS is one of the most common ailments of young calves. It is far more prevalent in calves in dairy herds than it is in calves in beef herds. The factors are both predisposing and exciting. Predisposing factors are care, management and feeding of the dairy cow, and most important, the feeding of the calf immediately after birth. In many dairies calves are permitted to obtain excessive quantities of milk for the first one or two days after calving, and this is probably the most important factor among the causes of this malady.

The infective cause of white scours in calves is due to various microorganisms, the most important of which is the *B. coli communis*. These organisms gain entrance to the calf's body through ingestion, usually from soiled teats or probably from the litter in the stall. It is eliminated from the diseased calf with the feces.

*Symptoms:* According to the severity and rapidity of the attacks, white scours in calves may be conveniently discussed as acute and chronic. In the acute form it usually occurs within 72 hours after calving, although delayed cases may occur as late as a week or ten days after calving. The outstanding symptoms of the acute form of white scours are fever, increased respiration; diminished appetite, rapid emaciation and convulsions.

The usual symptoms of the chronic cases consist of pot belly, unthriftiness, lack of development, and in some instances, pneumonia. Chronic cases are probably in the majority of instances, spreaders of the infection.

The lesions found in a calf dead of acute white scours are variable, but one can usually find gastritis, masses of coagulated casein in the abomasum enteritis and tumefaction of the related lymph glands.

In making a postmortem examination of a very young calf, the pathologist should bear in mind that hemorrhages of varying dimensions are of common occurrence in calves and are not significant lesions.

*Treatment:* This, like any other malady particularly of infant farm animals, can be prevented more successfully than treated after the disease has gained a foot hold. The prevention includes proper care and feeding of the dam and more particularly the proper feeding of the newborn calf. It is generally conceded that colostrous milk is very important in establishing normal digestion as well as resistance to infection in the new born calf, and other things being equal, it is advisable to provide that the new born calf obtain colostral milk from its mother.

It should be borne in mind that a normal calf has no desire for other than milk and calves from one day to a week of age that pick up hay or straw are abnormal and this is probably one of the early symptoms of white scours. When calves have a tendency to pick up foreign substances it is advisable to muzzle them.

The corrective treatment is worthy of trial particularly in calves that are of considerable value. According to a recent report, an English veterinarian has recommended gastrotomy and removal of the coagulated casein. This appears to be a drastic measure and probably should not be resorted to except in extreme cases.

It has been found that practically all calves affected with white scours have a strongly acid reaction in the digestive tract and therefore the use of one ounce of sodium bicarbonate combined with two-dram doses of aromatic spirits of ammonia have proved of value in some cases. Some calves seem to respond to the administration of large doses of castor oil. Use a six- to eight-ounce dose for the calf weighing 75 to 100 pounds. Intestinal antiseptics in a sodium bicarbonate solution is probably also of value at least in some instances.

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*Excerpts by A. T. Kinsley from a discussion by W. L. Boyd, at the 31st annual meeting of the Minnesota State Veterinary Society, Minneapolis; January 12-13, 1928.

### Calf Pneumonia

Calf pneumonia is relatively prevalent and frequently occurs as a sequel of white scours. This malady may occur at any time from one to eight weeks after birth of the calf. The causative factors of calf pneumonia are both predisposing and exciting. The predisposing influences consist of undue exposure, improper feed and insanitary surroundings.

The exciting causes consist of various bacteria such as streptococcus, the B. bipolaris, pyogenes, pyocyaneus and the B. abortus. The mortality in this malady is relatively high, apparently because of the fact that the calf's resistance has been materially diminished before the onset of the disease. Calf pneumonia may be acute or chronic.

*Symptoms:* The principle symptoms manifested consist of rise in temperature, increased respiration and in some instances, scours. The extent of the malady is more or less accurately reflected in the intensity of the symptoms. Generally speaking, calf pneumonia affects several individuals in the same herd within a few days time.

*Treatment:* The treatment of this malady consists in providing proper surroundings, the administration of nourishing feed and the use of stimulants. In valuable calves, it is advisable to apply a counter irritant under the thorax if the case is observed during the congestive stage. Such agents should not be applied after the hepatization stage has been reached.

### Calf Diphtheria

This malady is more or less prevalent in various sections of the country. It is primarily caused by infection with the *B. necrophorus.*

*Symptoms:* The principle symptoms manifested in calf diphtheria consist of fever, scours and other symptoms depending upon the location of the local lesions. In those cases in which the infection is localized on the buccal mucosa there will be difficulty in nursing; the calf will probably loll and there will be more or less of a stringy mucous discharge from the mouth that has an offensive odor.

After the lesions progress, swellings will be noted on the cheeks as a result of tumefaction of the mucous membrane. When the local lesions are situated in the digestive tract there will be indigestion manifested by colicy pains and scouring. When affection of the lung results in pneumonia the exhaled air will have an offensive odor.

*Lesions:* The lesions in the case of calf diphtheria are the same as the lesions induced by the *B. necrophorus* in other animals and consist of an inflammation followed by subsurface necrosis and accumulation of a necrotic mass, giving the appearance of a diphtheretic inflammation.

*Treatment:* Cases of diphtheria usually do not respond to treatment. In those cases in which the malady is recognized in the very early stage and in which the lesions are confined to the buccal structures, the curreting of the local necrotic tissues and the application of tincture of iodin or some other reliable antiseptic usually suffices to destroy the infection and overcome the disease.

Such treatment is not applicable when the lesions are located in the digestive tube or in the lungs. This malady can probably be quite effectively prevented by providing proper sanitary surroundings for parturition and for the care of the calf for the first few days of its life.

### Lead Poisoning

Lead poisoning in cattle is a far more common malady than is usually recognized. Very small quantities of lead suffice to produce serious disorders in cattle, and as lead is extensively use on many farms as the principle ingredient of paint, there is ample opportunity for the cattle to ingest it.

Many cases have been observed in which calves showed extensive lead poisoning, the result of licking posts, fences and buildings that had been covered with lead paint. Some few instances of lead poisoning have occurred from paint scaling off the interior of silos and becoming mixed with the silage. If silos were more generally painted on the interior the losses from this source would be considerable.

This malady is manifested by colicy pains,

diarrhea, blueness of the gum lines, paralysis and death.

When the disease is well advanced, treatment is of little avail. It can be prevented by preventing the animals from obtaining lead. This will probably best be done by a general system of education of farmers, insisting that they use zinc paint for barns, stancheons, fences, etc.

### Lung Worms

Lung worms or pulmonary strongylosis is rarely observed in cattle less than eight months of age, but is common in cattle of mature age.

It is the result of an infection by the *Strongylus micrurus.* This parasite becomes lodged in the smaller bronchioles, produces irritation, followed by atypical catarrhal pneumonia.

*Symptoms:* The principle symptoms manifested consist of a bronchial cough with gradual emaciation. The cough is quite characteristic and consists of a paroxym of expulsive efforts in rapid succession, and in many cases this causes exhaustion of the animal and it will fall to the ground. There is also a peculiar bronchial wheezing associated with this type of pneumonia.

Pulmonary strongylosis usually affects a relatively large percentage of the herd, particularly if they have all had equal access to the source of infestation.

*Treatment:* Successful treatment of this condition is difficult because the parasites are so deep seated that it is almost impossible to apply any medicants even by inhalation that will come in actual contact with the parasite.

The treatments usually recommended consist of inhalation of eucalyptus oil or like agents, or the intratracheal injection of a bland oil containing creosote, turpentine or some other parasiticide. In any event, treatment is usually not successful.

This disease can usually be prevented by proper sanitary precautions.

### Papilloma

Papilloma is of common occurrence in calves. The cause is unknown. This malady is usually not fatal, but causes the owner considerable concern.

## ARICYL A USEFUL TREATMENT FOR ALOPECIA IN DOGS

In response to the request of C. A. D., Wisconsin, for a treatment for alopecia areata in a dog, my experience may be of interest. I have had a number of cases and have very good results with aricyl, an arsenic preparation. It is superior to sodium cacodylate because it is non-irritant and does not produce infiltration at the site of the injection; further and perhaps because of its non-irritant action and consequent prompt absorption, the desired arsenical effect will be obtained in the shortest possible time.

I have given over 500 doses of aricyl in the last three years without an abscess or any trouble. When I want to administer arsenic in any form, I use aricyl. I get better results.

As to the cause of alopecia, I don't think anyone knows what causes it. I think it is due to an infection in body and blood. I have seen it show up after distemper, following worm infestation, as a sequel to improper diet, following ear canker, and it may be due to a heriditary condition.

I am treating a Boston female, eight months old now, whose mother was affected when she was a pup. I treated her (the dam) with aricyl, giving her four treatments in a year and she cleaned right up and has not been troubled since the second treatment, which was given about two years ago.

I would suggest five injections of number 1 strength (2cc. ampules) every third or fourth day till the five doses or course has been given, and then I would wait three or four weeks and give another similar course, and I would give four courses in a period of a year.

The diet should be beef, given raw twice a week and cooked the rest of the time, with milk if she can retain it.

Anderson, Ind. N. C. Elberson.

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Successful turkey raisers avoid runs, pastures and houses that have been previously occupied by chickens.

# Veterinary Services of Different Grades Required

By W. C. VAN ALLSTYNE, Walcott, N. Y.

IN THE November 1927 issue of VETERINARY MEDICINE, Dr. S. L. Stewart comments at length on my article in the September number. The conclusions he draws from the instances cited are so different from my interpretation of the circumstances and some of his statements are so at variance with the common acceptance that I desire to call attention to, and discuss them.

On page 454, the Doctor calmly says that for those sections that cannot support a veterinarian (he refers to the highest type of veterinarian, one who earns and receives a good fee) there is the all wise quack to give them cheap service and frequently the county agent to give them free veterinary advice.

It seems almost incredible that the Doctor really means what he says, but I will submit his statement to our readers, and let them decide for themselves whether a three-year, or even a two-year school graduate would not be better for the farmer than the quack to whom Doctor Stewart so unceremoniously hands them over.

When deciding this question for yourselves, please bear in mind that only a few years ago, a large percentage of our instructors in veterinary schools and universities were graduates only of the Ontario Veterinary College, then a two year school, and wrote "V. S." at the end of their names. Also that many of them are yet living and teaching, and are known internationally for their skill as operators, for their ability as instructors in colleges, and for the many valuable standard text books now used in our leading state universities as well as for their many and varied contributions to our leading veterinary journals, and then decide for yourselves, which you would prefer to have treat your stock, they, or the quack or county agent.

It may be said that those men are not a representative type of the two-year school, that they are the cream, as it were, of the classes. But, I think it will be admitted by everyone that the average graduate of the classes of those days rendered a valuable service and measurably lived up to the requirements of his time and the expectations of his clients.

If Doctor Stewart really means what he says, I believe he stands alone in his belief.

The Doctor states that "The field is well supplied with veterinarians at present." In this I think he stands very much alone.

I mentioned in my former article, that there were certain localities, more particularly the Pacific Coast states, that were abundantly supplied with veterinarians. Several years ago, that distinguished veterinary practitioner and writer, Dr. John L. Tyler of California, wrote an article, in which he begged that no more veterinarians come to California, as there were already more than enough there. That is the only article that I have seen in the last decade to that effect, and I ask that Doctor Stewart cite additional articles in either VETERINARY MEDICINE, the Journal of the A. V. M. A., or Cornell Veterinarian written during the last ten years by any well known educator or prominently known veterinarian, in which alarm or even concern is expressed over the rush of new students to veterinary colleges or the crowded condition of the practitioners' field.

On the other hand, during this time, many articles have appeared from the pens of our university deans and other writers, deploring the shortage of matriculants in our veterinary colleges and the scarcity of veterinarians in our rural districts, prophesying a serious shortage of veterinarians in the near future and calling on veterinarians to induce young men to enter the field.

During 1925 VETERINARY MEDICINE had

nine articles, in 1926 five articles, in which the writers expressed concern about the shortage of veterinary students. In the past three years nearly as many such articles have appeared in the Journal of the A. V. M. A.

To Doctor Stewart's statement that the field is well supplied, I would take the liberty of referring him to the many articles to the contrary, and at the same time I would like to ask the authors of those various articles in an open letter—*Are You Still in Accord With Your Articles as Written, or Have You Changed Your Opinion to that of Doctor Stewart?*

Reference to the crowded conditions of our universities, is very diplomatically put, but is misleading. It is true, our universities are crowded to capacity—*in some branches,* but *not* in the veterinary division, and the fact that medicine, dentistry, law, engineering and others are crowded, has no bearing on the discussion of the veterinary conditions, except to prove what we said on page 360 and 361, that the enrollment of future veterinary students depends on the comparative financial and social results, or as Professor M. H. Reynolds of the University of Minnesota so aptly puts it in his article in the April 1927 issue of VETERINARY MEDICINE—"The attendance at our veterinary schools must rest finally on the composite investment and returns as compared with other opportunities for young men."

In much of my article, Doctor Stewart and I seem to be in accord. He says he has a very high opinion of his dean. I also have, and I have likewise of mine own, though they were not dignified by the title of dean. Principal Andrew Smith, that pioneer of veterinary medicine in America, and Professor Joseph Hughes, familiarly and affectionately known to their students as "Andy" and "Little Joe" will never lack for honor and respect for their memory, while the man who receives a more spontaneous greeting and hearty handclasp with all the heart in it, than our own "Pa Baker," will be difficult indeed to find.

Dr. Stewart also quotes my words "Higher educational standards, etc.," so again we are in accord. I firmly believe that every professional man should strive to obtain the best he can (I spent the past winter at a university myself) but, because I believe that every man, no matter what his profession, should strive to improve his ability, it does not blind me to the fact that there is a wide field, and a needfull demand for veterinarians of lesser ability, to take care of those places that are hard work and poor pay.

When a workman in a shop is promoted from mechanic to shop foreman, his promotion creates the need for a workman to take his old place at the bench. The same is true when by reason of additional study, experience and post graduate work, a veterinarian steps from an ordinary country town practice, to that of a remunerative one in a large city, there must be some one (who by reason of the same limitations that restricted Dr. X from locating in a better place at first) that will step into the vacancy and carry on the practice till he too passes on to a more profitable location. This is the natural law of progress and promotion, and is as true in veterinary practice as of any other class of work.

Doctor Stewart heads his article "Cheap Service, Poor Service," to which I unhesitatingly agree. Cheap service *is* poor service, usually to the degree that it is cheap, and this rule applies to everything under the sun that we purchase, and why he should try to make veterinary service an exception, I fail to understand. Without meaning to cast any reflections on the Doctor's ability, for the same rule will apply to all of us, we believe that our services are both cheap and poor in comparison with that of some veterinarians, and at the same time more expensive and better than that of others, and we believe that the Doctor is candid enough to acknowledge the application. But, if a man desires an inferior article, knows he is getting an article not up to standard, pays an inferior price, but which may be all that he can afford, or all that the case in hand will justify, it strikes me as being his business, and no concern of ours.

I certainly would resent as the height of

impertinence the refusal of a clothier to sell me a pair of two-dollar overalls, though they might answer my needs fully, giving as his reason that a four-dollar pair were better. There should be many grades of veterinarians to meet the different conditions in which they may elect to practice, just the same as there should be different grades of automobiles and other machinery, just the same as there should be different grades of workmen from the common laborer, up through the grades of mechanic, foreman, general manager up to president of a concern. That the raising of the standard of education, (whether it be right or wrong) has resulted in leaving thousands of farmers without veterinary service, cannot be successfully denied.

Why the farmer, whose stock does not possess the monetary value to justify the employment of a high-priced veterinarian (even granting for the sake of harmony that his services are more expert) should be deprived of less proficient services, I fail to see, any more than a customer who cannot afford to buy porterhouse steak should be prohibited from purchasing soup bone or stew. If every veterinarian was capable of holding a deanship, who would take care of the unremunerative practice.

The prize held out for increased efficiency is *promotion,* and this is true in all walks of life, including veterinarians, who, with mighty few exceptions, such as those who are starting in as junior partner with dad have to progress up through the lower grades of professional standing, to one of prominence. Doctor Stewart seems to indicate we should all be top notchers first, though just why the veterinary profession should be made the exception, and run contrary to the promotion as a reward of efficiency found in every other business (except politics) I fail to comprehend.

The question as to the advisability of different grades of education, to meet the demands of a wide variety of conditions, is a subject not susceptible of proof either way, being pretty much a matter of individual opinion, on which one man's idea is worth as much as another, and no more.

The recommendation to turn the poor over to the county agent and the quack, I leave to readers.

In discussing this subject, I have tried as far as possible to avoid making any recommendations for a solution of the problem, contenting myself with pointing out some of the conditions from the farmer's viewpoint, and how he feels about it, and leaving for more capable minds the working out of an equitable plan.

Had I stated either directly, or by inference, that I advocated the discontinuance of higher education, I should have passed over Doctor Stewart's remarks without further comment, but his article, in addition to making several statements already mentioned, with which I think but few veterinarians will agree, tends to place me in the unenviable position of advocating a reversion to conditions of fifty years ago, which a perusal of my former article will fail to substantiate.

Editor's Note—This interesting discussion will be continued next month by a writer who holds that both Major Van Allstyne and Doctor Stewart are in the wrong.

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## IOWA SHORT COURSES FOR VETERINARIANS

The Veterinary Division of Iowa State College held its second Practitioners' Short Course on "Breeding Diseases of Cattle" the week of February 27 to March 3, 1928. The outline of program will give an idea of the nature of these courses. The individual laboratory instruction necessitates limiting the number in attendance. The attendance this year was limited to 25 and we doubt if there were ever 25 students more interested in any course of study. There was a one-hundred per cent attendance for the entire course.

After several years of conducting short courses both general and specific in nature, we are convinced that this plan of giving four or five days of intensive instruction on some particular problem, limiting the number in attendance so as to give individual in-

struction and repeating these courses as often as it seems advisable, is undoubtedly the proper procedure. Last spring we held our first short course of this nature on the "Breeding Diseases of Cattle." This year we held a poultry short course of a similar nature December 12 to 18, and again February 27 to March 3 we offered our second short course on "Breeding Diseases of Cattle."

We believe that the arrangement of our lectures and laboratory exercises in such sequence of order was greatly responsible for the continued interest and prompt attendance at all classes. Practitioners are not accustomed to sitting and listening to long lectures, and cannot possibly learn as much by the lecture and demonstration method as by actually doing the work themselves. Mimeographed outlines of lectures and laboratory procedure were presented to each one and suitable note books provided for notes.

Wednesday evening was very delightfully and profitably spent at the annual banquet of the Ames Chapter of the Junior A. V. M. A. All of the talks were exceptionally inspiring to anyone at all interested in the progress of the profession. About 175 students, faculty and guests were in attendance.

Ames, Iowa. W. G. Guard.

Schedule for Practitioners' Short Course—BREEDING DISEASES OF CATTLE

| | 8.00—10.00 | 10.00—12.00 | 1.00—3.00 | 3.00—5.00 | 7.30—9.00 |
|---|---|---|---|---|---|
| Monday, Feb. 27, 1928 | | Registration and outline of course. Reading Room. Dean C. H. Stange. | Lecture—Anatomy of female generative organs and the phenomena of the estrous cycle. Dr. Aitken. Lab. demonstration and examination of fresh specimens. Drs. Foust, Aitken. | | Basketball game. Iowa State vs. Washington U. Gymnasium 7.15. |
| Tuesday, Feb. 28, 1928 | Lecture—Abortion disease. 1. Bang Bacillus and other factors. Dr. I. F. Huddleson. | Lab. Each member to draw blood and start abortion test. Drs. Huddleson, Murray, and staff members. | Anatomy of male genitalia. Drs. Aitken and Foust. 2. The bull as a factor in abortion and sterility. Drs. Huddleson and Covault. | The collecting of samples and lab. exam. of semen. Drs. Aitken, Benbrook, Rice and Merchant. | Round Table Discussion. Dr. Huddleson, Chr. Technic of vaginal and rectal exams. Dr. Guard. |
| Wednesday, Feb. 29, 1928 | Interpretation of blood tests. 2. Methods of controlling abortion. Drs. Huddleson, Murray, Covault. | 1. Outline of herd management, system of records, etc. Dr. Covault. 2. Diagnosis of pregnancy. Dr. Guard. | 1. Each one to palpate 2 fresh cadavors per rectum guided by assistance through laparotomy wound. 2. Vaginal inspection of normal cows. 3. Palpation of normal, open cows; dairy heifer, dy. cow, beef cow. 4. Palpation of cows in various stages of pregnancy—7 cows ranging from 55 days to 6 months. Drs. Guard, Covault, Aitken. | | Veterinary Medical Society Banquet. Sheldon-Munn Hotel, 6.15. |
| Thursday, Mch. 1, 1928 | 1. Pathology and therapeutics of sterility. 2. Laboratory examination of packing house and preserved specimens. Drs. Covault and Guard. | | Laboratory<br>Palpation of sterile cows. Drs. Guard, Aitken and Covault. | | Round Table Discussion. Dr. Covault, Chr. Diseases of the Newborn. |
| Friday, Mch. 2, 1928 | Examination of sterile cows and technic of treatment—Drs. Guard, Covault and Aitken. | | | | Round Table Discussion. Dr. Guard. |

## IMMUNIZATION OF BABY PIGS

Immunization of baby pigs against cholera is being given widespread publicity by experiment station publications and the agricultural press. The following interesting information was recently released by the Illinois Experiment Station:

During a five-year period, 1923 to 1927, inclusive, 2,220 pigs, the majority of which were four weeks old, were given 15cc of concentrated serum and 3cc of virus. At market age, 1,033 of the 2,220 pigs were exposed to cholera by the injection of 5cc of virus or contact with cholera infected swine, and 60 or 5.7% died of cholera. The percentage susceptible to cholera varied during different years. Thus, in 1923, approximately 12% died of cholera; in 1924 over 10%, in 1925 over 2%, in 1926 nearly 3%, and in 1927 only 1% died of cholera.

Those in charge of the experiment, R. Graham, E. A. Tunnicliff and E. C. McCulloch, suggest that baby pig immunization against cholera is technically possible but they do not advise it in routine practice. These investigators further suggest that cholera immunity may be overcome or suspended by the occurrence of other diseases such as infectious necrotic enteritis and parasitisms.

It is apparently advisable to continue the usual practice of immunization of pigs after weaning.

# Protecting The Livestock Owners Against Fake Remedies*

By B. T. WOODWARD, Washington, D. C.
Veterinarian Food, Drug and Insecticide Administration U. S. Department of Agriculture

PROPRIETARY remedies, often called patent medicines, have always had a legitimate place in providing a home treatment for the minor diseases and ailments of animals. With the present scarcity of graduate veterinarians in many farming districts of the United States a still greater need for proprietary preparations which have known value in the treatment of live stock and poultry has developed.

In the field of proprietary preparations there is a class of manufacturers who are exercising all reasonable precaution by study, by practical and laboratory tests, and by honest advertising to supply to the live stock owner a preparation upon which he may within reason depend in the prevention or treatment of the conditions for which the manufacturer recommends it. It is a satisfaction to know that this class of manufacturers is making an active effort to push to the front and maintain that place before the public.

### Profits Versus Values Received

Unfortunately there has always existed another class whose principal aim appears to be the accumulation of profits without any regard to the value delivered to the purchasers of their preparations, and the damage and losses which may result from their use by the purchasers. Farmers and live stock owners, devoting their time to the major projects of obtaining crops and growing live stock, do not have time or opportunity to make a specialized study of the diseases of live stock and poultry and of the drugs which may or may not be of value in the prevention or treatment of diseases. These men depend upon the manufacturer of patent medicines to employ the scientifically trained veterinarian or in his absence to seek knowledge and sell to them those preparations which embody the results of this knowledge. In this they have too frequently been disappointed.

### Checking Adulteration and Misbrand of Veterinary Medicines

Congress in considering the food and drugs act recognized the need of protecting the live stock industry of the country against adulterated and misbranded medicinal products for veterinary use. In the passage of the law in 1906 it accordingly included provisions for the control of this class of preparations as well as products intended for human use. Four years later Congress supplemented that act so that additional protection was afforded by the insecticide act. The enforcement of both of these acts is now under the supervision of the U. S. Food, Drug and Insecticide Administration, and special work is being undertaken by its Veterinary Section to provide live stock and poultry owners with increased protection by specially directed enforcement of the veterinary phases of both acts.

### Protection Against Fake Remedies

Every breeder knows the tremendous losses which the live stock industry has borne in the past and is still carrying as the result of the continued existence of such diseases as tuberculosis of cattle and poultry, contagious abortion of cattle, hog cholera, swine plague, necrotic inflammations of the intestinal tract of swine, distemper, influenza and glanders of horses, bacillary white diarrhea of baby chicks, and chicken cholera. Discussion

*Read at the Ninth Annual Veterinary Conference, University of Illinois, Urbana, Illinois. Printed in Animal Pathology Exchange in furtherance of the Agricultural Extension Act approved by Congress, May 8, 1914.

KANSAS STATE AGRICULTURAL COLLEGE

of these diseases by veterinarians is a usual feature on the program of a farmers' meeting, and the farmer has not been slow in calling upon his representatives in the State Legislatures and in the Federal Congress to appropriate moneys for scientific effort toward the eradication of these diseases. Both National and State Legislatures have responded to these pleas, and active campaigns have accomplished much in the control of contagious and infectious diseases, and in the prevention of dangers and losses from them. Unscrupulous manufacturers and distributors of fake remedies are utilizing the prevalance of any such disease to crowd the advertising spaces in many magazines, newspapers, and other publications, and are sending great masses of circulars which promise the prevention, treatment, or cure for these contagious and infectious diseases for which science has been unable to create any medicinal prevention, treatment, or cure.

**Eliminating False and Fraudulent Claims**

Inspectors visiting drug stores and general stores in a community of live stock owners are constantly confronted with labels appearing upon these preparations, which in substance urge the farmer to buy them and stop the losses which he is sustaining. The volume of business done by manufacturers of such preparations, reaching millions of dollars annually, indicates that in the aggregate they have obtained from the live stock owner, under false and fraudulent claims of results, great sums of money which if utilized in scientific campaigns against the live stock and poultry plagues would enhance the progressive results in their eradication and bring large personal savings to the live stock owner.

**Cure-All Preparations Often Overrated**

Most farmers know that hog cholera spreads from an infected herd through the community if prompt steps are not taken to immunize the exposed hogs against the disease, and that the only method of prevention that has proved successful is the use of anti-hog cholera serum. Despite this fact, certain manufacturers of proprietary preparations claim that the combination of drugs which they are selling will prevent or will even cure hog cholera. The swine owner who is misled into the use of such a preparation not only suffers the loss of his own hogs but, by failing to take proper precaution through immunization and quarantine, establishes and often attempts to secrete a center of infection from which the disease may spread to his neighbors and cause them severe losses before they have realized that hog cholera is in their community. If the sale of a fake remedy to such a swine owner can be prevented we have not only saved him the loss which should morally be charged to that manufacturer but many dollars may be saved to the industry in that state.

**Standardization of Disinfectants**

It is not only the manufacturer of drug combinations that are to be given by mouth to the animals, but also the manufacturer of disinfectants who is responsible for these losses. Without in any way depreciating the value of the use of reliable disinfectants, it must be understood that without the inclusion of other measures a disinfectant will not prevent or control any contagious or infectious disease.

The real value of a disinfectant of proved germicidal power is in destruction of infection of the premises after they have been thoroughly cleaned, following the removal of whatever animals or poultry are affected with a communicable disease. A false sense of security is undoubtedly given to the stock owner in the recommended use of a disinfectant claimed to aid in the prevention or control of tuberculosis without the included use of the tuberculin test, or of hog cholera without the use of serum, or of bacillary white diarrhea without a blood test.

**Medicated Drinking Water Not a Panacea**

For poultry diseases and to a less extent for animal diseases like hog cholera some manufacturers conduct extensive

advertising campaigns claiming that the addition of their preparation, frequently permanganate of potassium, bichlorid of mercury, or sodium hypochlorite solution, to drinking water will both prevent and successfully treat many diseases. Such claims are without any foundation in fact and all that the addition of such chemicals to drinking water can accomplish is the providing of a disinfected drinking water, and even this property is but transient when the water becomes contaminated with the organic matter of feces. There is only a temporary elimination of a single possible source of infection. Disinfectant solutions in the strength in which they may be found in drinking water if taken into the stomach, have no power against the progress of an existing contagious or infectious disease in the bird or animal and when the extreme dilution of the chemical produced by its admixture with the large volume of gastrointestinal material is realized, its inefficacy is even more apparent.

Dips for scabies and ticks, delousing mixtures and fly-repellants receive their share of attention, and are submitted to practical tests by the veterinary staff.

Provisions of the Federal food and drugs act and of the insecticide act are intended to assure a protection to the public against the sale of preparations for which false and fraudulent claims of therapeutic efficiency of composition are made.

### Ingredients on Label

A statement upon the label of the amount of morphin, cocain, heroin, chloroform, ether, acetanilid and a few other drugs of this class whether intended for human or veterinary use is required. It may seem superfluous to require the declaration of such ingredients in veterinary preparations but you can readily appreciate that such drugs even in veterinary preparations might be diverted to illegal channels particularly in the case of habit forming narcotics. If a man states the quantity of ingredients contained in his preparation obviously such ingredients must be present in the quantities represented.

In the Department's information sheet on drugs it is stated that:

Language used in the label is to be given the meaning ordinarily conveyed by it to those to whom it was addressed.

The printing of names of diseases or disorders on the labeling of a medicine for public sale conveys to the purchaser the impression that the product in itself is a competent treatment for the diseases mentioned. One who is seeking something that will rid him of his trouble is more concerned with the names of the affections for which the product is recommended than with the style of language employed. Regardless of whether the product is recommended as a "cure," "remedy," "relief," "useful in the treatment of," "indicated for," or simply "for," certain affections, the question is whether or not the product in itself, by reason of the contained ingredients, constitutes a treatment for the disorders named. The names of diseases in a labeling, therefore, should be limited to those for which the article, in view of the recognized medicinal action of its ingredients, considered singly or in combination, is a treatment. Names or organs or portions of the body should not appear upon a labeling unless the product can properly be considered a treatment for any and all disorders to which such organs or parts may be subject.

### Testimonials May Mean Nothing

Voluminous testimonials are submitted by manufacturers as evidence of the value of their preparations. The manufacturer or distributor alone is responsible for the accuracy and truthfulness of any testimonial which he uses in advertising. These testimonials are usually issued by laymen and rarely by a professional man who has conducted actually scientifically checked experiments. When presented to the courts they have been of little or no weight in influencing judgment.

### How the Law Operates

In its efforts to protect the live stock owner by preventing the sale or distribution of preparations with false and fraudulent claims, the Administration in the Federal government follows several lines of attack. Inspectors who are distributed among stations throughout the United States visit factories where the proprietary remedies are prepared and obtain information with regard to the manufacturer, labeling and distribution of these remedies, and submit the labeling to-

gether with comments on the preparations to the Washington office for consideration. Sometimes violations of a minor character which may be corrected by revision of the statements are brought to the attention of the manufacturer through the medium of correspondence. In case of violations of a serious character, such as those including claims for diseases for which there is no scientifically recognized medicinal prevention or treatment, shipment of the goods are located at various points and seized by United States marshals. Although frequently the manufacturer is warned that shipment of his goods is in violation of the law, if distribution does not cease shipments of the goods would be seized wherever located. Such seizures result in cases brought in the Federal courts. In some instances it may be necessary to institute criminal proceedings against the manufacturer or distributor. In most instances the results are attained without recourse to the courts. Recently about twenty so-called abortion remedies have been removed from the market with only a single case having been brought to trial.

### Voluntary Cooperation from Manufacturers

There is developing an improved spirit of cooperation from the proprietary medicine manufacturer to the Government. Some manufacturers are voluntarily appearing at the Washington headquarters and submitting all of their labeling and literature for the purpose of enabling them to bring it into conformity with the law.

### Veterinarians Have a Responsibility

As veterinarians charged with the protection of the great live stock industry of the United States, and with the duty of protecting the live stock of individual clients from the administration of useless and fake remedies, it is suggested, when you know of the use of such preparations in your community, that they be brought to the attention of the Food, Drug and Insecticide Administration.

# Book Reviews

## Anthelmintics

Anthelmintics and Their Uses in Medical and Veterinary Practice, by R. N. Chopra, Professor of Pharmacology, Calcutta School of Tropical Medicine and Hygiene, and Asa C. Chandler, Professor of Biology, Rice Institute, Houston, Texas; published 1928 by Williams & Wilkins Company; Baltimore; 291 pages; cloth bound; price $5.00.

More than half of this text is devoted to a discussion of anthelmintics for parasites of animals, and this will bring it an eager welcome from veterinarians because of their great interest in this subject at the present time, and because of the increasing menace to the live stock industry that parasites constitute.

The need for such a work is well stated in the following excerpts from the preface:

> The treatment of helminthic infections, particularly helminthic infections of the digestive tract, constitutes a very distinct branch of therapeutics. The organisms to be dealt with form a group widely different from other infectious organisms in structure, physiology, relation to host and reaction to drugs; the methods employed in attacking most of these organisms are different from those used in attacking most other infectious organisms; and the drugs that are used also form a group by themselves since comparatively few of them are commonly used for any other purpose. A study of anthelmintics, therefore, forms a natural and circumscribed branch of pharmacology. . . .
>
> In general, treatises on pharmacology the anthelmintics are almost always meagerly and inadequaetly treated, and often all but neglected. . . .
>
> Such references to anthelmintic treatment are scattered among the various chapters on the different organisms, and nowhere can one find a connected account of the general principles of anthelmintic treatment or a detailed account of the nature, physiological effects, recommended uses and data on the efficiency of the various anthelmintic drugs. Such information is widely scattered in journals dealing with pharmacology, parasitology, veterinary science, and medicine, as will be seen by reference to our bibliography. Very few medical or veterinary practitioners, or even research workers on the treatment of helminthic infection, would be likely to have access to all or even the greater part of them. The writers feel, therefore, that there is a real need for a comprehensive account of anthelmintics and their uses, and have made an effort to fill this need.
>
> In spite of the fact that helminths were the first known infective organisms, and that at-

tempts to eliminate them were probably among the first medical efforts made by the human race, progress has been slow, and many advances have been made only within very recent years. There are few specialists in helminthology, and in this age of specialists, the medical and veterinary professions cannot reasonably be expected to keep abreast of the times in all fields of medical investigation. It is not surprising, therefore, that a great many medical and veterinary practitioners, who only occasionally have to deal with helminthic infections, are not fully up to date in their methods. It is hoped that the present volume in which we have attempted to bring together the recent as well as the time-honored methods of attacking helminthic infections, will be helpful to the general practitioner in giving him fairly complete and comprehensive information on a subject in which he is, as a rule, only incidentally interested. . . .

In addition to giving a discussion of all agents and measures used for the control or elimination of parasitic worms, much information is included on helminthology—the effect of helminthic infestations, the helminths parasites of the various animals, a key to the identification of helminths, and a very complete bibliography including all the more important papers and treatises on the subject of helminthology.

Specific directions are given for the use of each anthelmintic in a manner to render it most efficient—the dosage, the preparation of the host, the after care, etc.

The work will prove a useful and much needed addition to the information available on veterinary parasitology.

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### Filtrable Viruses

Filtrable Viruses by a number of well known authors and edited by Thomas M. Rivers; published 1928 by Williams & Wilkins Company, Baltimore; 428 pages; cloth bound; price $7.50.

This volume presents ten discussions of filtrable viruses as infectious agents and their effects on men, animals, fowls, insects and plants. It is an absorbingly interesting record of systematic study. While there is, as is to be expected in a work of this character, some lack of agreement among the authors, the divergence is more of opinion than of evidence. However, this volume certainly adds to the sum total of our knowledge regarding these very important etiological factors of disease and should appeal both to the laboratory investigator and the practitioner.

A point very well taken by the editor is the extent to which the indiscriminate segregation of infectious diseases of unknown etiology to the fitrable virus group is carried.

From many viewpoints, each disease produced by a virus is a law unto itself as referring to Article I, "From the epidemiological standpoint the group of filtrable virus diseases is notable chiefly because of the remarkable difference exhibited by its members when compared one with another."

Again, regarding immunity produced as the result of infection with a filtrable virus, the author states, "With a few exceptions recovery from disease produced by filtrable viruses is followed by a lasting immunity."

"The question as to whether the viruses are animate or inanimate is also an old one, in as much as it was propounded simultaneously with the discovery of the filtrable nature of the viruses." . . . "Sanfelice working with fowl-pox in 1914 found that the virus was not inactivated by one per cent sodium hydroxid, and because of this fact, he was led to think of it as an inanimate poison capable of attacking normal cells and producing within them a poison of a similar nature which in turn could attack other normal cells." Thus, he described his idea of how a lifeless agent might be passed in series reproducing itself indefinitely.

Again, in considering the nature of virus "No lifeless culture medium has as yet been discovered which provides a virus with the substances required for its maintenance and growth. It is possible that such a medium will never be found because some viruses may be non-living substances manufactured by tissue or blood cells and not ultramicroscopic organisms." . . . "No virus has been obtained in an absolutely pure state. Not even the washed granules of vaccine virus can be accepted as representing only virus."

The article on filters and filtration is admirably written and supplies information very much needed at this time. A fact that is well recognized by investigators is that brought forward by the author. "An under-

standing of the process of filtration, however, has by no means kept pace with the manufacture and dissemination of filters." "The apparent simplicity of filtration has been a pitfall, leading usually to incomplete recording of essential data and frequently to unwarranted conclusions."

The chapter on intracellular pathology in virus diseases is of more than passing interest, especially to students of animal pathology. The author states: "One of the most striking attributes of many diseases caused by filtrable and as yet ultravisible viruses is the development of large and conspicuous x-bodies within the cells."

The author, goes on to describe these x-bodies and to differentiate them from other groups of bodies, some of which have been erroneously linked with filtrable viruses.

In the article on virus disease of mammals, a view is presented while not altogether new, is of value in that the evidence presented indicated the possibility of important development. "The recent discovery of at least two types of the foot and mouth disease virus, which show identical clinical pictures but no cross immunity."

The title of the article "Virus diseases of fowls" is somewhat misleading in that it deals almost exclusively with the virus of fowl-pox. However, it is very interesting and contains more information than has hitherto been presented.

The article on bacteriophagy throws some light upon this very interesting phenomena and is well worth careful study.

To sum up the studies, no better terms could be employed than those of the editor: "In the majority of virus diseases, a close relationship between the etiological agents and the cells of the host exist." "This intimate type of parasitism is emphazised by the fact that some of the diseases exhibit a striking species specificity." "That the viruses have resisted cultivation in the absence of living cells, that characteristic or specific pathological changes are frequently observed in cells affected by viruses and, finally, that a host once recovered from a virus disease, exhibits a lasting immunity." —Sherman Aldrich.

## The Modern Cat

### HER MIND AND MANNERS

An Introduction to Comparative Psychology, by Georgina Stickland Gates, Assistant Professor of Psychology, Barnard College, Columbia University; published by Macmillan Company, New York; 196 pages; illustrated; cloth bound; price, $2.00.

This is essentially an inquiry into what the cat has "in the back of its head." Actually it is a record of careful research into the mental capacity of the cat as revealed by its instincts, training and actions. Doctor Gates, with the characteristic thoroughness of a scientific mind, has investigated the cat tales of literature, folk lore and superstition and gives explanations or interpretations based upon observation, scientific tests, and dispassionate reasoning.

With the single exception of a Senate investigation, we can think of no investigation more devoid of practical usefulness than this one, but Doctor Gates has done her work thoroughly and presented the results in a readable manner.

In brief, and subject to some qualifications, she finds the cat unable to think or reason or remember in the usual meaning of these terms. It cannot distinguish colors. All the world is made up of varying shades of gray to the cat. It does not see still objects clearly but only dimly in outline, as the human eye perceives in twilight. Moving objects are more readily seen. A cat cannot count and does not miss the kittens removed from her litter so long as some are left in the nest, even though those removed may be strikingly different in color from the ones that remain. It cannot remember for more than five seconds in which of two holes a mouse has disappeared. It cannot learn by imitation or by being put through tricks or acts that it is to learn, but only by the slow process of avoiding unproductive effort. The homing instinct exists in but a small percentage of cats, and those that do return to their homes after being carried away are in most instances, probably enabled to do so by acquaintance with the locality acquired through roaming. The cat does not possess

telepathic powers, or the ability to foretell changes in weather, storms or earthquakes. Of course, all this contradicts many beliefs and superstitions, but the cat tales of the past and present will not stand the light of Doctor Gates' investigation.

It would seem a useful book to recommend to or to loan to those benighted individuals who think that the accomplishments, real or fancied, of their cats are of interest to all and sundry.

## ANOTHER GOOD STORY GONE WRONG

After struggling two hours in a cold barn with the thermometer hovering around 5 degrees below zero to help an undersized heifer to bring her first offspring into the world I was told by the owner of the animal that although it was a tough job it was an easy one to figure out and nothing like one that he pulled off years ago, seeing that he had a story he wanted to tell for the edification of myself and a number of neighbors who were present, I asked to hear the story and here it is substantially as he told it.

"Some ten years ago I bought a cow from a dealer that was about ready to freshen and when I got the animal home she was stepping from one hind foot to the other like a cow will do when she is ready to calve so I waited a few hours and nothing happened.

"I examined her and found that the calf was coming from the roof of the cow's vagina and I could pass my hand clear under the calf so I called in a couple of neighbors and they examined her and found the same condition as I found, I knew she was trying to calf the worst way by the way she was stepping around so I decided on a desperate move, I wrapped my handkerchief around my jack knife and reached into the cow and slit a long hole in the womb and the calf popped out, you see there was no neck on the womb, and the funny part about it was the heifer took the bull just one month later, now what do you think of that job for one of quick figuring?"

I told him if he would have the other men step out of the barn for a few minutes I would tell him what he actually did, not wishing to spoil a story he said he had told to hundreds of people including a few vets and none of them ever heard of such a thing. Protestingly he said, "No, Doc, if I didn't do right, tell me in front of these fellows." So I explained what he had done was to cut into the placenta which was protruding out into the vagina and that nature had not as yet completed its work on that particular cow by the rupturing of the placenta and that he could have ruptured it with his finger as well as with his knife.

"Well, I'll be damned," said the expert. "That job got me a great reputation around here as a handy man with ailing cattle, and come to find out it was no trick at all."—J. R. M., Ill.

## STAGGER GRASS A POISONOUS PLANT

In 1926, Dwight Marsh, A. B. Clawson, and Hadleigh Marsh, published a paper on this plant commonly called stagger grass and known to botanists as *Chrosperma muscaetoxicum*. It is also known as "fly poison," "crow poison," or "fall poison." It has narrow grass-like leaves and bears a dense raceme of flowers, somewhat greenish in color and has red fruit. F. L. Huggins of Wilmington, N. C., wrote to the U. S. Department of Agriculture stating that it was called stagger grass because it was fatal to sheep in twenty-four hours. The U. S. Department of Agriculture then made an investigation which leaves no doubt as to the poisonous properties of the plant.

The plant grows in somewhat sandy or swampy soil. It is interesting to know that it is related to another poisonous plant, known as bunch flower, *Melanthium virginicum*, which is common as far west as central Iowa and is poisonous.

Since this is the season that poisoning from stagger grass occurs from Florida to Virginia and Long Island, the following may be of interest:

The symptoms are salivation, causing frothing of the mouth and pronounced symptoms of nausea. In acute stages the pulse is rapid, respiration is somewhat more rapid than normal and only slight elevation of the temperature. The animal becomes weak and staggers and the poison is cumulative.

The following brief summary is given by the authors:

*Chrosperma muscatetoxicum* has been recognized as poisonous, but has not previously been reported as a stock-poisoning plant.

The plant has been known locally, in parts of North Carolina, as dangerous to cattle and sheep.

Experimental work has confirmed the opinion of its poisonous properties, and has shown that it is an extremely toxic plant.

Inasmuch as the plant occurs from Long Island to Florida and as far west as Arkansas, it seems probable that it may cause losses of stock in many places besides those reported.

L. H. Pammel.

## SWEET CLOVER POISONING

From time to time I have received communications in regard to the poisoning from sweet clover. Dr. H. R. McEwen, Stonewall, Man., Canada, has sent an interesting communication to VETERINARY MEDICINE. The splendid observations made by Dr. McEwen and the interesting comments are as follows:

"Under separate cover, I am sending a sample of spoiled sweet clover, sow thistle, etc., and would be glad to have a report on the findings, especially a report from Dr. L. H. Pammel.

"The stock of feed that this sample was taken from has been responsible for the death of about a dozen animals, and incidentally has given me my first experience in sweet clover poisoning. Since encountering this trouble, I have read all the literature I could get relating to sweet clover poisoning. The last I read was circular No. 37 of the North Dakota Agricultural College and it seems to be a general belief that animals must be fed over a period of weeks before there is much danger; all I wish to say is that in the trouble I have had, this statement is not borne out.

"I will cite the situation as I found it, and you can draw your own conclusions. This particular farmer, Mr. H. French of Stony Mountain, Man., had ten head of good grade Herefords in one barn. These had been fed exclusively on spoiled sweet clover for a period of about six weeks, when a veal calf suddenly died and the next day another calf died and a young cow became affected. In the next forty-eight hours, three more became affected. In the next forty-eight hours, three more became suddenly ill and died, another calf became affected but is recovering and another cow is apparently well, without the use of the affected hind leg.

"In the corral and another shed, there were four young cattle rising two years old. These had not been fed any sweet clover until February 24th, and between February 24th and March 13th, they received three feeds and as Mr. French said, had eaten very little and what they had eaten was what was left over after the horses had eaten a goodly share. They received their last feed March 12th. On March 14th, one suddenly swelled up over the hip and died. On March 17th another was swollen under the jaw in the morning and dead at night.

"This seems to be contrary to all knowledge on sweet clover poisoning and naturally I am anxious to know if more might be learned. The symptoms and lesions in these cases were the same as in the cases that had been eating sweet clover for six weeks and were typical for sweet clover poisoning, i. e., extensive hemorrhages in subcutaneous or other tissues.

"Any information you may give will be greatly appreciated.

"This particular clover was stacked outside and during stacking and later received altogether too much rain."

There is no longer any doubt concerning the poisonous qualities of sweet clover—*Melilotus alba.* The numerous valuable experiments made in Canada by several investigators, the North Dakota experiments,

and the old records made in France years ago, leave no doubt as to the poisonous qualities of the plant. The specimens sent to me are woody, very moldy and therefore would not make good forage. The poisoning may have been due therefore, not only to the direct action of the sweet clover but of the moldy condition of the fodder. I am therefore glad indeed to publish this interesting letter of Doctor McEwen which is the first report to come to my attention of sweet clover poisoning after so short a period of feeding the plant.

L. H. Pammel.

## PEDUNCULATED PHARYNGEAL PAPILLOMA IN A BULL

February 25, 1928 I was called to see a pure-bred Holstein bull. According to the owner, the bull would neither eat nor drink and was having a very hard time with breathing—in fact he seemed to be unable, at times, to secure any air at all. The condition had been growing progressingly worse for a week.

Upon examination the temperature was 103.5 deg. F., pulse 40, respiration irregular and with distinct tracheal rales. A distinct snoring was distinguishable upon inspiration. The bull would cough and after an attempt at deglutition would have a very pronounced dyspnea, lasting for two or three minutes. This process of coughing and swallowing was repeated constantly. Extension of the head increased the tendency to cough. Palpation of the anterior cervical region was negative.

A speculum was placed and the bull's head restrained. By manual examination I located a pedunculated tumor at the right dorso-posterior margin of the pharynx. This neoplasm was approximately the size of an apple and the peduncle was about one inch in diameter and the same in length. Arrangements were made for an operation and a guarded prognosis given.

A fine wire was passed through the mouth and looped over the neck of the papilloma at its point of pharyngeal attachment. The tumor was grasped firmly in the left hand. A "V" shaped obstetrical chisel was passed along under the wire to the tumor. By combined pulling on the wire and cutting with the chisel the mass was successfully removed without any marked hemorrhage. A few shreds of mucosa were removed with my fingers.

The mechanical obstruction of the glottis as exemplified by this case is interesting. Upon each inspiration the neoplastic mass was sucked into the laryngeal aperture thus acting as a valve. In turn coughing expelled the mass and by alternating these movements the bull was enabled to breathe and remain alive.

After treatment consisted of luke warm water to drink and a diet of eggs, milk and bran mashes. Alfalfa hay in limited quantities was permitted. The only medicament used was two ounces of mineral oil—a sort of dual purpose medication because it gave the owner something to do and, to some extent, eased the pain of the operative field. Improvement was marked and in two weeks the owner reported the bull to be "cagey," which, in the parlance of the middle west, means that he was in first class condition.

Marshalltown, Ia. Glenn V. Grewell.

## A FEW ODD FIT CASES IN THE DOG

1. A German shepherd dog, two years old, over distemper, was quietly sleeping under a table. A boy, about six years old, a member of the family, on mischief bent, stealthily crawled under the table and suddenly blew into the dog's ear. The dog immediately went wild, ran around the house barking, frothed at the mouth, and developed a typical case of running fits. When I arrived at the house, about an hour after this occurred, the dog was locked in the bathroom, over its fit, but highly nervous, trembling like a leaf, and with a temperature of 104 deg. F. I administered a dram dose of elixir of veronal, and left tablets of the following formula:

| | |
|---|---|
| Tr. cannab. American | 5 min. |
| Tr. Hyoscyam. | 5 min. |
| Kalii bromid | 2½ gr. |
| Ammon. bromid | 2½ gr. |

Sig. Give one tablet three times daily, to be continued for four days.

The dog had two fits the following day, but neither was so severe as the fit the first day, and both came on as a result of the boy who had started the trouble trying to approach the dog. After the second day, there were no more fits, and the dog made a good recovery, but it was almost a month before the child could regain the dog's confidence. The animal would growl and show its teeth every time the boy tried to approach it. I call this a true case of "fright disease."

2. A four-year-old, male beagle hound was used for hunting rabbits. He had been acquired, sight unseen, from a southern kennel and was guaranteed to hunt rabbits. The owner took him afield and found that he did hunt rabbits well, but after hunting fast on a hot trail for about fifteen or twenty minutes, he would suddenly go into a "chopping" fit, lying on its side and kicking its legs backward and forward, at the same time champing the jaws. The fits lasted from five to fifteen minutes, and then the dog would go back on the trail, only to be again taken with another fit after hunting for a while longer.

Microscopic examination for parasite eggs was negative, but the dog was wormed on general principles with negative results. I placed this animal on a sedative treatment (the same tablets used in case No. 1), without benefit. The fits occurred only while the dog was hunting. The diet was changed to raw beef and cooked green vegetables. The fits continued when the dog hunted. This patient was taken to another veterinarian who treated it for canker of the ear. The fits continued. The owner became angry and shot the dog. He no longer has fits. Was it epilepsy, or what?

3. Male airedale, seven-years-old; never under a veterinarian's care; diet mostly table scraps, with plenty of starches.

About ten minutes after eating its supper one day, this dog commenced running around the house barking. It was let out into the back yard where it commenced straining in attempts to defecate, but continued to run and bark between these attempts. I was called and we had considerable trouble catching the dog in the yard, but finally cornered and muzzled him.

About three inches of lumps of fecal matter, hard as rocks, were removed from the rectum. I had the owner administer high enemas of warm soapy water daily, as the entire intestinal tract was found on palpation to be impacted. Tablespoonful doses of milk of magnesia morning and night was prescribed and the diet changed to liquids, both to be continued for three days; the diet then to be mostly meat and green vegetables. The dog had but the one fit, which was undoubtedly due to constipation.

4. A female airedale, seven-months-old, commenced having fits at about eight in the morning, and was still having them when brought to my place at noon. She was anesthetized with ether, but as soon as the cone was removed, she would commence having the fits again. The owner ordered her destroyed, so the ether was pushed until death occurred. The owner would not permit an autopsy, but took the body away with him. I suspected a foreign body in the intestine, tapeworm, or the early stages of nervous distemper.

Newark, N. J. M. J. Hughes.

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## QUININ AND UREA HYDROCHLORID IN THE TREATMENT OF PROLAPSUS RECTI

A two-year-old Hackney colt, in a very debilitated condition, had been living at grass and doing badly.

The globular eversion of the rectum was about six inches in diameter. It was not a difficult matter, after cleansing and oiling, to reduce it.

It was returned three or four times daily for nine days. Cocain and adrenalin was injected at several points, at various visits, with only a fleeting response. Olive oil enemas daily and small doses of oil daily *per os* were employed. Straining was a prominent feature for which hypodermic injections of morphin were given.

Thinking that the long duration of the

local anesthesia from an injection of a solution of quinin and urea hydrochlorid might possibly stop the local irritation and the straining, it was tried. The application had the much desired effect. The colt ceased straining, and no further return of the prolapse occurred.—R. A. Philp in *The Veterinary Record.*

## RED-WATER DISEASE IN DAIRY COWS

For some time I have been confronted with a trouble in dairy cows that I am not handling as I would like to; too many fatal cases.

The trouble effects new milk cows, usually heavy milkers. The trouble comes on any where from one to three weeks after a normal calving. The cows, apparently well one day, will be found in a bad way the next morning.

The first symptoms noticed by the owner are, marked weakness, blood-colored urine and loss of appetite. The milk flow is not affected at first, but gradually decreases as the animal fails to eat. There is a slight rise in temperature, labored heart action, the skin becomes pale noticeably around the eyes, on the teats or where the skin is white. The fatal cases usually die on the third or fourth day.

Any help that you can give me on this trouble will be greatly appreciated.

—J. W. C., Utah.

**Reply:** Probably you are dealing with "red water" disease or ictero-hemoglobinuria. This disease is more or less prevalent throughout the Pacific coast region and in fact, all regions west of the Rocky Mountains. It is, to a certain degree, a seasonal disease, there being more cases during certain seasons of the year than at other seasons.

The symptoms are: Diminished or suspension of appetite, rumination and milk flow. The animal has a dejected appearance, arched back, dry coat, and when forced to move, usually evidences pain or distress by grunting. The muzzle is usually dry; the visible mucous membranes are icteric. In the very beginning there is usually a rise of temperature up to 105°F or 106°F. This usually subsides later and may be normal or subnormal. The case usually dies within a few days after the onset of the disease. Thus far, no specific remedy has been found that is of particular value.

The Nevada Agricultural Experiment Station produced some aggressin from *B. Welchii,* which they suspected of being a causative factor, and this agressin apparently gave quite satisfactory results. We suggest that you write the station at Reno, asking for further particulars on this subject—A. T. K.

## A SIMPLE AND EFFICIENT METHOD OF TREATING FRACTURES IN CANARY BIRDS

Many canaries are brought to my hospital with fractures of the tibia and tarsometarsus, occasionally the tarsus itself is involved. Fractures of the femur are very rare. The fractures are treated as follows:

1. The bird is held by an assistant who holds the wings over the back with the index finger between them so as not to make the patient more uncomfortable than necessary.

2. A light artery forcep is attached to the very tip of the middle nail. This extends the limb which is usually held tightly flexed against the body.

3. The feathers are pushed up out of the way in the higher fractures, say the middle or upper third of tibia.

4. Around the fracture, a third to half an inch above and below it, is painted with flexible collodion. After a moment a second coat is applied and in the same manner several coats to build up around it and hold the bones or pieces of bone in apposition.

5. A little absorbent cotton is wiped around the collodion to give the surface a little roughness. It also increases the tensile strength.

6. A small piece of tin foil similar to the kind used in small ointment tubes is shaped to fit snugly around the portion treated and it is gently placed around and carefully tooled, one flap over the other

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with a pair of small sharp pointed artery forceps.

7. The bird is placed in a cage without swings or perches. Food and water is placed on the floor of the cage.

I have had some fractures where only a small thread of tissue was holding the distal part to the limb and have in these cases kept the cast on one month. As a rule two weeks is enough. We charge five dollars for this cast, whites and blacks have never questioned the price. The bird of course is kept at home.

We average one of these cases a week, year around and I have never had an assistant who knew how to start to treat these fractures in little birds until he learned this simple method. Lots of sick and injured birds come to my hospital and it is not unpleasant work, paying as much as dog and cat work.

New Orleans, La. W. J. Ratigan.

## THE PROOF OF THE PUDDING AS TO HEMORRHAGIC SEPTICEMIA BACTERINS

I have just read the article in the April number of VETERINARY MEDICINE by Drs. D. B. Palmer and I. O. Burrington, the title of which is "Some Observations on Hemorrhagic Septicemia in Transit Cattle."

Under case reports they cite seven lots and their conclusions are that, "As curative agents we have found no value in either the bacterin or the aggressin, and only a limited value to the serum."

It is rather difficult to discuss an article of this sort without appearing antagonistic. I have been both a practitioner and a teacher too long to get any comfort or glory out of trying to belittle another man, but I think every practitioner is justified in helping his fellow colleagues and I am going to discuss briefly this article.

I read Drs. Palmer and Burrington's article on a Sunday afternoon while seated in a comfortable chair and then I thought of the days before we had bacterins and serum, and I tried to put in approximate numbers the animals that died in our practice, say 20 to 25 years ago, from hemorrhagic septicemia or stockyard pneumonia, as we knew it then, but when I took into account the number of shippers of dairy cattle into our locality and tried to recall them all, I got as far as 27 and then I remembered that these men from early Fall to late Spring were shipping in a carload or two a week for several months each year (we produce more commercial milk in our county and surrounding territory than any other similar area on the globe) and every week some of these shippers lost anywhere from one to eighteen out of a carload, so figure up for yourself how they died on us.

We have not as many shippers now but I think there have been from 3,000 to 5,000 cases of hemorrhagic septicemia in bovines within a hundred miles of our office during the past six months. We have never experienced anything like it in general dissemination. But have 30 to 50 per cent or 80 per cent died as they did 20 years ago—*No,* not one-tenth of that percentage have died.

Everyone acquainted with immunology knows that at the present time no authority claims any curative value for aggressins but serum and bacterins. *Yes, positively—yes.*

We have not only the testimonials of our own staff, treating thousands of these more by bacterins and later using some serum, but our laboratories have evidence of perhaps one-half the rural practitioners within a radius of 100 miles of us having similar results following our method.

I recently heard a veterinarian make a statement at the South Eastern States Veterinary Association Meeting, held at Jacksonville, Florida, that you could send tissue and blood of any sick animal to some laboratories and the diagnosis would come back "hemorrhagic septicemia." If this be true it is unfortunate. *The bi-polar organism is not present in the tissues of all sick animals.* But it is well to bear in mind that Christ Himself had a traitor in his cabinet, and why destroy our usefulness to the cattle industry because there may be some traitors producing biologics.

Goshen, N. Y. J. F. DeVine.

# The Veterinarian and Poultry Diseases*

By LOUIS A. KLEIN, Philadelphia

School of Veterinary Medicine, University of Pennsylvania

The poultry industry has developed very remarkably in the last few years. The number of fowl is increasing in all parts of the country. Poultry lends itself to intensive methods of production and for several years it has been one of the most profitable live stock branches. Disease is the great menace to this rapidly growing industry. Rapid growth with greater concentration of numbers and more intensive methods of production increase this danger from disease.

Many veterinarians are taking an interest in poultry diseases and are rendering useful service to this great industry. Many more veterinarians could well do so and could obtain a class of clients who would appreciate such service. Poultry flocks are becoming more valuable and individual birds of good breeding are bringing high prices. Veterinarians are needed to diagnose flock ailments and to give advice regarding the prevention and control of disease.

The infectious diseases of poultry cause an enormous loss. Veterinarians, because of their training in the fundamental medical sciences, can best advise poultrymen in outbreaks of disease. Parasitism is becoming more and more common among fowls and veterinarians can give good service in advising owners regarding the handling of the flock to prevent parasites doing such a great deal of damage.

Avian tuberculosis is of great importance and deserves the attention of our best veterinarians. Tuberculosis has made deep inroads in our dairy industry, producing a huge economic loss, and is occupying the attention of more veterinarians at present than any other field of veterinary activity. Avian tuberculosis presents a problem of great economic importance in certain sections and warrants the interest and efforts of those concerned with live stock ailments.

Bacillary white diarrhea, the most fatal disease of chicks, causing untold damage to the poultry industry, is a highly transmissible disease. It produces a carrier stage in the adult, and the veterinarian familiar with such problems in live stock diseases is best qualified to give advice regarding such a question. Regulatory authorities are giving much attention to this disease. A field of activity is here presented to the veterinarian capable of great development. The prevention and eradication of bacillary white diarrhea will depend very largely on the attention it receives from the veterinary profession as well as on the cooperation the veterinary profession receives from the poultry industry.

Poultry practice differs from other kinds of veterinary practice. It is a matter of giving advice about numbers rather than about individuals. The ordinary methods of physical diagnosis are used to a great extent. History is important and must be given consideration along with symptoms. Post-mortem material is readily available and autopsies are comparatively easy. Material for laboratory examination is easily prepared for shipment. Attention to sanitation and the correction of errors in nutrition are important. The veterinarian, by using the methods in which he is trained, can be just as successful in treating the diseases of poultry as those of any other species of live stock. The opportunity to treat poultry diseases should not be neglected.

* University of Pennsylvania Bulletin Vol. XXVIII, No. 29, April 14, 1928.

# Internal Parasites of Poultry

By WM. L. BLEECKER, Fayetteville, Arkansas
Department of Bacteriology and Pathology, College of Agriculture, University of Arkansas

SOME form of parasitism is almost universal in poultry. It is very unusual when an autopsy is performed on a fowl, for whatever cause, that one or more kinds of parasites are not encountered. The kinds which are most often found are the round worms, *Ascaris inflexa,* in the small intestine, and *Heterakis papillosa* in the ceca, various varieties of tapeworms, capillaria and coccidia. Coccidia microscopic tapeworms, and capillaridae, on account of their small size, are very apt to be overlooked and for that reason microscopic examination of scrapings from the intestinal wall and of the contents of the ceca should be made at every autopsy.

That poultry is so universally found to be harboring parasites is due to several factors. Fowls are naturally filthy animals. No material is so putrid that they will not work it over searching for food, and no water is so stagnant or so filled with filth that, if given an opportunity, fowls will not drink it. Then again the sanitary arrangements on the farm, where poultry is but a side-line, does not include or extend to the poultry. It is only on those farms where the rearing of fowls is the principal business that the sanitary arrangements tend to control and will eventually eradicate internal parasites.

If allowed the range of the farm, fowls will spend most of their time in or in close proximity to the poultry house or in, or possibly under, other buildings. In poultry rearing we have not yet reached the point on the majority of farms where the birds are confined in yards and houses that can be thoroughly disinfected at regular intervals. The ova or embryos of all of the internal parasites which affect poultry are capable of existing in the soil or in decayed organic material for months or even for years in some instances and until practices are adopted that will make the thorough disinfection or the periodic turning and planting of the soil over which poultry are allowed to range possible, we cannot hope to get rid of internal parasites.

## Poultry Parasites a Serious Economic Problem

That this almost universal presence of internal parasites is of great economic importance is a well established fact. Young chicks that are infested with internal parasites do not grow as they should. They become stunted, unthrifty and the cost of growing them to marketable size is out of proportion to their value. As breeding stock they do not come in lay when they should, as their development is retarded. The decrease in egg production of infested hens over that of healthy birds is very marked. Parasites also make the fowls more susceptible to other diseases. It is relatively rare for a bird to die of parasitism alone. The general thing is that the presence of the parasites cause such a decrease in the resistance of the host that it is a ready victim for some other infectious disease; with the cause of which it may come in contact.

Parasites in but small numbers cause very little trouble. It is only when present in considerable numbers that parasites cause serious damage.

## Injuries Due to Parasite Infestation

Heavy infestation is injurious in various ways. The parasites absorb the partly digested food from the host and in that way rob it of nutriment. When but a small number of parasites are present this is probably of little consequence. However, in fowls so badly infested that the lumen of the intestine is practically occluded, this factor must have a damaging effect. Through their presence in large numbers the parasites set up a mechanical irritation which results in a thickening of the mucous membrane of the host and this prevents the

natural rapidity of absorption. And again this irritation causes increased peristalsis, resulting in a diarrhea in which the contents of the intestine are hurried through the tract so there is not the proper opportunity for absorption to take place. The irritation also results in the pouring out of lymph and blood plasma into the intestine and nutriment which has already been absorbed is lost to the host.

The parasites besides absorbing nutriment from the intestine are at all times elaborating their own waste products into the intestine of the fowl. These are absorbed and cause serious symptoms in the body of the host. The most serious symptoms noted in parasitism, particularly of the intestinal tract, are due to the action of these toxins.

### Symptoms of Parasite Infestation

Enteritis is one of the most common conditions caused by intestinal parasites leading to some form of diarrhea. The gape worm *Syngamus trachealis* interferes seriously with respiration, the infested birds often dying of suffocation.

The symptoms shown by fowls infested with internal parasites are not definite. Practically the same chain of symptoms are found whether a bird is heavily infested with round worms or tapeworms. Through their mechanical irritation they cause more or less severe enteritis, depending on the number of parasites present. This enteritis causes a thickening of the mucous membrane, retarding absorption, leading to emaciation, weakness, and depression in heavily infested fowls.

*Taenia Infestation.*—It appears that the tapeworms elaborate more active toxins or those having a greater affinity for nerve cells, as nervous symptoms such as leg-weakness and paralysis are more prevalent in birds harboring these parasites.

*Blackhead.*—The symptoms of enterohepatitis in turkeys differ from those shown by fowls infested with other intestinal parasites. Young turkeys are most often affected, turkeys of all ages are susceptible. While characteristically a disease of turkeys, chickens are susceptible. It is thought that recovered turkeys act as carriers of the organism. In the living turkey usually the most prominent symptom is the bluish-black discoloration of the head, comb, and wattles. However, this symptom is not always manifest. Upon post-mortem examination the liver is found to be greatly enlarged and shows large areas of caseation necrosis. Usually one of the ceca is enlarged and filled with blood-stained necrotic material and its walls studded with necrotic areas.

*Gape Worms.*—The symptoms manifest in gapes are those of suffocation. The parasites collect in groups along the trachea and bronchi and from their increase in size and due to edema which their presence induces the lumen of the air passages is very much reduced in size. In severe cases birds will die from suffocation due to complete occlusion of the air passages. In this condition cyanosis is a prominent symptom.

### Treatment of Parasitism

Treatment of infested birds differs with the form of parasitism with which they are affected. Group medication is not to be recommended as there is no opportunity to determine the amount of the therapeutic agent any individual bird will receive.

For *Ascaris inflexa* and *Heterakis papillosa,* the administration of tetrachlorethylene, one capsule containing 1 cc. of this compound for each bird, is most highly recommended.

The treatment which has been found to be the most satisfactory for tapeworm infestation is the administration of kamala. Capsules or tablets containing the correct dose for each bird can be purchased. The use of the capsules is preferred as they go into solution much more rapidly and the action is more immediate. The treatment should be repeated in three weeks unless the birds show marked improvement.

The control and ultimate eradication of internal parasites in poultry should be the goal of the veterinarian. In the control of each parasite a full knowledge of its life history and habitat is necessary. It is an established fact that the common house-fly is a necessary intermediate host of one of the tapeworms most commonly infesting fowls. Knowing this, it is easily recognized

that in order to control this parasite the premises surrounding the poultry house and the house itself must be kept in such a sanitary condition that flies do not find a place in which to breed. Snails and other semi-aquatic animals are intermediate hosts for other tapeworms, so in order to control these the fowls should be confined in well-drained yards where these animals can not exist.

In control of these parasites that do not require an intermediate host, other means of control are necessary. In most cases the old fowls are carriers of these parasites and for this reason the young birds should be kept entirely separate from the others. The ova of the round worms are not capable of infesting a new host for several days after being deposited. For that reason, the prompt removal and disinfection of the droppings is one of the means of controlling these parasites.

It has been found that when provision is made to confine fowls in yards which are so arranged that but one out of three are in use at any one time that internal parasites are not a problem. When such a system is used one run is in use, one has been deeply plowed, and sowed to some grain crop, such as oats, barley, or rye, and the other is growing such a crop. The birds are then moved from one to the other as soon as the crop growing gets to the proper stage. With an arrangement of this kind the control of internal parasites is not difficult.

# Maintaining and Culling a Flock for Commercial Egg Production

By O. W. JOHNSON, Davenport, Washington

CULLING chickens is a delicate "operation" for unless one knows what he is doing, he is liable to cause himself or someone else a needless loss. Much harm has been done to this cause by self styled poultry cullers, who quite often are in league with butchers and thus make money from two sources, and also by county agents who have only a theoretical knowledge of poultry and poultry culling methods.

In Leghorn breeds it is quite easy to pick out and cull the hens which are not laying at the time the culling is done, but many good hens quit laying for a short spell through no fault of their own, and it is not fair to cull out hens for causes over which they have no control.

Among the most common causes which occasion hens to quit laying temporarily are:

1. Sudden change of feeds or feeding method which will throw the very best of hens into a false moult.
2. Moving.
3. Zero or below zero weather.
4. Wet litter.
5. Drafty and badly ventilated chicken house.
6. Ice cold drinking water.
7. Too much force feeding, causing hens to lay beyond their capacity and breeding.
8. Moldy or spoiled feed.
9. Insufficient or badly balanced ration, which will cause them to quit until they have had time to build up their body tissues.
10. Lack of green feed.
11. Insanitary conditions.
12. Insufficient mineral elements in the feed.

Then again one must consider:

1. The size of the flock.
2. Housing conditions.
3. Price of eggs.
4. Price of poultry (meat).

If the flock is just right for shipping one case of eggs every three days so that the eggs can be guaranteed fresh and command a premium, it is unwise to so cull out the flock that it would take a

week to fill a case of eggs, thus having them become stale in hot weather. Further, if there is ample floor space, by this I mean at least three square feet for each Leghorn hen, there is no great incentive to cull for the few extra non-paying hens make very little extra labor. If egg prices are high at the time of culling even a poor producer may be a money maker during the high price period, and I would not cull her out until later. Also during summer and fall when much poultry is dumped on the market the meat price is low, and one might take a self-supporting hen and throw her on the market for 25 cents, when by waiting a few months, during which time she pays her way, one may get double this price or more.

In most cases it is difficult to draw a sharp line between the money losing, and the self-supporting hen, and in those cases the conditions enumerated in the foregoing must be kept in mind.

My method of culling during the past few years has been as follows:

First I must say that with Leghorn hens I consider it too expensive to raise a new flock of pullets every year, and furthermore I do not have enough range to do so. Therefore I plan on replacing one-half of the stock each year. This necessitates keeping some of the best hens three years. In order to keep up a flock of 400 hens it is necessary to raise 500 baby chicks each year. Of these I figure on getting 200 fairly good pullets, but after culling out the undersized and slowly developing ones I usually have only about 175 pullets left. These would replace nearly half of the flock, but one must figure on a 15 per cent mortality in the old stock from various diseases, and if one is unlucky enough to get an infectious disease among them, it will run much higher. For that reason the best two-year old hens must be kept another year, and by the end of that year there are not many left, for I have used them up at the table, instead of selling them to the butcher for 8 cents a pound, and buying tough beef steak for 30 cents a pound. Then too, there are many hens that develop various minor ailments which renders them unproductive for a long time, but not unfit for table use, and those are culled out regularly throughout the year.

When fall comes and time to put the pullets in the laying house I usually lack some floor space and therefore I go through the flock and cull out as many as is necessary of those hens, regardless of age, which have yellow legs and beak, for those I can be sure have not been heavy producers during the year; otherwise they would have used up all yellow pigments in the production of yolks. This is known as the pigmentation test and is in my experience absolutely reliable. The so-called Hogan System is not of much value. Any hen which is in full production will measure large between the pelvic bones and breast bone, and naturally in a laying hen the distance between the pelvic bones is large enough for passage of the eggs. Some hens, of course, measure larger than others, and this indicates a large capacity, or ability to consume and digest much feed, and one can be sure that they are good layers. No one can with accuracy judge the thickness of the pelvic bones, for in fat hens they are there is no relationship between size of kept by experiment stations show that covered with fat. Careful trapnest records it is that hens with thin, large combs, are better egg layers than those with small, the comb and egg production, but certain beefy combs.

It stands to reason that in a uniformly developed flock of pullets of the same strain there will be no great difference between individual egg production, and no hen will lay more eggs, regardless of feeding and housing methods, than her parents' breeding records in the past, and if more time was spent improving the strains and selecting hatching eggs than in culling, one would get higher producing hens, and for this there is no method more dependable than the trapnest records.

# Capons and Caponizing

By O. W. JOHNSON, Davenport, Washington

THE purpose of caponizing is, of course, the same as for unsexing any other domestic animal, the flesh of which is intended for human consumption. Cocks, after they are mature, develop a disagreeable flavor, which renders the meat almost inedible. There are also two other purposes (1) to take advantage of the quicker growth, and (2) to obtain a higher price than that commanded by broilers, as capons can be marketed during the time of year when there are few if any broilers on the market.

*Breeds to caponize.*—Only the heavy breeds should be caponized, and of these, the Jersey Black Giant makes the ideal capon. Rhode Island Reds and Rocks also develop into good capons. The Orpingtons I have found to be too slab sided and too hard to fatten. They may have a considerable amount of fat on, but just the same the breast bone is so prominent that dealers consider them too poor to command a premium price. The Leghorns should not be caponized for several reasons. (1) They are too difficult to caponize because of the very large testicles, and (2) the dealers want only heavy colored breeds.

*Time to caponize.*—The springers should be caponized when they are between three and four months of age, but age does not count so much as the size of the birds. From one and one-half to two pounds, preferably two pounds, weight, is the ideal size. If too small one takes risks of stabbing the lungs, and there is not enough room inside the abdominal cavity to insert the spreaders. If the birds are too large, they have already developed combs, and will be classified as stags by the dealers, and further the testicles are too large to remove in one section in developed cockerels.

*Preparation of the patients.*—No birds should be caponized until they have been starved at least 24 hours. It is almost impossible to caponize with the intestines filled with feed. Time and again I have tried it with poor results.

*Technic of the operation.*—Find an ordinary barrel; turn it upside down, and it will answer for an operation table. Hang a weight to the legs, and another to the wings, unless you have some one to hold the birds. Moisten the feathers slightly on the side; pull out some of the feathers near the last ribs; pull the skin backwards, and with the forefinger locate the last rib. With the scalpel make an incision through the skin and muscles between the last two ribs, downward, about one and one-half inches. Insert the spreaders. With the sharp hook puncture the peritoneum, and with the handle of the same instrument push the intestines away from the testicles so that they may be seen near the backbone. Grasp the upper testicle, if it is the only one in view, with the testicle remover, give it several twists until it comes loose. Unless the lower testicle is in plain view I have never found it expedient to pry around until it comes into position so that it may be grasped with the forceps. There is far more danger of hemorrhage from such proceedure. It is much better to turn the bird over and make another incision between the last two ribs as before, and the chicks get over the effects of the operation just as soon. The incisions close without any sutures.

It is well to start out with boiled instruments, but, of course, after one has handled a few birds, the instruments are no longer aseptic. No disinfectants should be used. They are unnecessary and they do harm inside the abdominal cavity.

*After Care.*—Give the birds free range, and feed and water them as usual, but don't require them to fly to high perches for a week. And don't under any circumstances crowd them, especially during hot weather, for in that case one will have a higher mortality from the after effects than from the actual operation. Some will develop wind

puffs, although this does not happen except when the lungs have been injured. These are best punctured with a sharp instrument. Some chicks will die immediately after the operation from hemorrhage, and these are fit for food. Some will linger along a few days and die. The mortality in healthy birds is very low, but in sick and weak chicks it will run quite high, and there is where the veterinarian has to be careful not to injure his own reputation as well as to cause his client a loss. I usually guarantee that the loss shall not exceed 3%, and if it runs higher than that I stand the loss.

*Charges for Caponizing.*—I charge 10 cents each for caponizing. If there are only a few birds I tell them to bring them in to my hospital; if there are 50 or more I go out to the farm and do it for the same price, if the distance is not too far. It will be seen I never count upon a loss exceeding 3%.

*Slips.*—No matter how careful one is there will be a few slips, because a part of the testicles, it may have been microscopic in size, has been left in the abdominal cavity. Such birds develop combs, but grow in size like normal capons. They do not command as high price as capons.

*Marketing.*—The best time to market capons is in the early part of February before broilers are on the market, for at that time there is a demand for capons, and dealers are willing to pay a high price. Two weeks prior to shipment, but not longer, the birds should be cooped up and fattened on milk and corn.

*Picking.*—If the birds are to be shipped by rail it saves freight charges to dress them at home. The dealers require, that they should be dry picked, and the jugular veins cut through the throat. After stabbing the brain, the jugulars are cut by inserting the knife through the mouth. This causes the feathers to loosen, so that they can be picked almost as easily as by scalding. Any tear in the skin is a defect.

*Profits.*—This depends on the cheapness of feed. There is more profit made on good laying hens, when given good care, but on a farm where chickens are kept as a sideline, and receive little attention, capons will bring a higher return for feed consumed than laying hens, and in fact a higher feed return than any other domestic animal.

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Cotton seed meal when combined to form a proper nutritive ration does not diminish the fertility of eggs. Beef scrap is superior to cotton seed meal for egg production.

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Bumblefoot caused by bruising in jumping from high roosts or cuts and punctures with glass, pins, etc., is manifested by lameness and tumefaction in the foot pad. These cases usually respond readily to treatment which should include removal of the cause, surgical dressing where needed and the application of some reliable antiseptic.

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Rose chafer poisoning is of rather frequent occurrence in chicks under three months of age. Rose chafers occur on vegetation in the spring and early summer months and are readily eaten by chickens. These beetles are extremely poisonous only a few being necessary to cause death. The symptoms, drowsiness, leg weakness, and convulsions, occur within an hour after eating the beetle. Treatment is of little value.

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Caponizing is growing in favor and many practitioners are finding considerable demand for this service. The losses incident to caponizing rarely exceeds 5 per cent, and as a rule are less than 2 per cent. The demands for capons particularly during the holiday season is increasing and the difference in price of capons and other fowl makes caponizing profitable for the producer.

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Toe picking is a habit induced by chicks pecking at food stuck in the foot until the toes are injured and bleed. The taste of blood causes more picking and the habit and injuries become general. This vice occurs most frequently in brooder chicks. Treatment: Remove and isolate the chicks that do the picking and the injured.

# Some Experiments with Introcid in Poultry Practice

By H. J. MAGENS, V.M.C., V.S., Kerrville, Texas

IN recent issues of VETERINARY MEDICINE[1,2,3] the physical, chemical and other properties of the new drug Introcid developed by Pfeiler-Jena have been described at length. Here it suffices to say that it is a cerium-iodin combination, designed to act on the principle of chemotherapy, whose most ardent exponent was the late Prof. Dr. Ehrlich. We have used this agent in cases where all biological medication, although normally perhaps indicated, left us in the lurch—using it as a last resort, a sort of pinch-hitter.

### Experience with Roup

The birds in this flock were very high bred game chickens of various types, although all of them were pure-breds. The owner had them shipped in from everywhere and continued to do so after he had been warned by the writer against such practice, until the present infection had become well established, rather violent and fatal.

The birds exhibited an exudate of a serous or mucopurulent character in the conjunctiva and the nasal cavities. They had lost their appetites completely and sat in a rather listless way, with ruffled feathers, rough and unkempt in appearance, their tails and their wings dragging the ground. At intervals they would sneeze and then proceed to clean their nostrils by wiping them under their wings, which would soon show the effects of this practice. Their eyes, watering freely at first, would soon swell enormously, completely closing them.

*Diagnosis*: Roup.

*Treatment*: The birds were given simultaneously 2cc hemorrhagic septicemia aggressin, 2cc avian mixed bacterin and 2cc avian mixed infection bacterin (roup).

Their heads and the oral cavities were sprayed with tincture of iodin and glycerin, equal parts of each.

They were given light feeds, warm mashes, magnesium sulphate being added in proper proportion. These treatments were faithfully carried out and repeated several days, always one day was allowed to intervene between biologic treatments.

Several birds died and others were coming down even though they had all been given prophylactic treatments in rather large doses and at least twice for each and every bird. I then decided to try Introcid solution since even a mixture of stock vaccines from different sources did not do the work as one could reasonably expect.

The sickest birds were culled out and given introcid solution subcutaneously in doses of 2cc each. The heads were treated with an introcid ointment, 2 per cent in strength, with the result that the exudate solidified under the eyes and could be extracted mechanically. We observed this phenomena in most birds. In others, where the eyes had just begun to water, the swellings would subside after the first injection. All birds were treated again two days later. Out of these birds we still lost several, bringing the total loss up to 4 per cent, after the treatments with introcid had been given. Previous to that they were much heavier. The birds began to get better daily after the third treatment and were well within a fortnight.

### Successful in the Treatment of Turkeys

Another experience with roup may be

[1] Introcid in Veterinary Practice, by R. L. Higgins, M.R.C.V.S. VETERINARY MEDICINE, Vol. XXII, No. 10, October, 1927, p. 410.

[2] A Review of the Literature and Case Reports on Introcid, by H. J. Magens, VMC., V.S. VETERINARY MEDICINE, Vol. XXII, No. 10, October, 1927, pp. 432-4.

[3] Introcid in Bovine Practice, by H. J. Magens, VMC., V.S. VETERINARY MEDICINE, Vol. XXIII, No. 4, April, 1928, pp. 147-9.

of interest. These birds, Bourbon turkeys, were in ill health for several weeks. Some of them showed edematous sinuses and orbits. Some of them had their eyes completely closed. Many of them exhibited nasal discharges, many of them showed a rather stubborn diarrhea. Almost all of them had ruffled feathers, rough in appearance, untidy and unkempt, in short their general appearance was dejected.

*Diagnosis*: Roup and possibly intestinal parasites.

*Treatment*: All birds were given internally capsules containing tetrachlorethylene, and several days later capsules containing kamala. At the time of the first treatment each bird was given 5cc of introcid solution subcutaneously. This treatment was repeated in eight days. No new cases showed up. Edema of the orbits disappeared, the appetite of all birds returned and they soon were well on the way to recovery. There were no losses in this flock.

A flock of beautiful bronze turkeys that I was called to see was, as a whole, in very good condition. Some of the birds had begun to lose their appetites; they exhibited serous and muco-purulent discharges from the nose and eyes. In three instances their orbits were very much swollen and edematous closing the eye completely. The owner wanted to confine the trouble if at all possible to the birds already affected.

*Diagnosis*: Roup.

*Treatment*: All birds were given laxative feed and several times we ordered magnesium sulphate to be added to the feed. All diseased birds were given a large capsule filled with kamala, and subcutanously 5cc of introcid solution. Their heads were treated with the 2 per cent introcid ointment daily. The other treatment was repeated once. Results were satisfactory; all recovered. The birds that were apparently well were given 5cc mixed avian bacterin and 2cc of hemorrhagic septicemia agressin.

A third flock of turkeys on which I used this treatment were beautiful bronze, both tame and wild, showing exactly the same symptoms as the bronze turkeys mentioned above. They were treated the same way and with the same satisfactory results.

Another flock of turkeys, whites and bronze mixed, showed exactly the same symptoms and were given the same treatment with the same satisfactory result.

Still another flock of turkeys showing a heavy worm infestation in addition to the worst symptoms of roup were treated in the manner described in the first flock of turkeys, with similar result.

*Conclusions*: With introcid we have a stable chemical agent which we can depend upon in combatting conditions which are in character mixed infections and therefore not to be easily controlled with ordinary stock vaccines. Our experience has shown it to be very effective no matter how advanced the cases. We would welcome reports of the experiences of others.

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## COLDS AND PNEUMONIA OF POULTRY

Cold or simple catarrh of fowl is a mild inflammation of the nasal passages and is characterized by a watery discharge from one or both nostrils together with more or less inflammation of the eyes. Colds are many times the forerunner of what is commonly called roup. Only a few birds in a flock may be affected but it is not uncommon for the affection to appear in a majority of the birds simultaneously. Exposure to unfavorable conditions, such as dampness and drafts seem to be the main predisposing cause. Long periods of continued rain without the proper housing facilities and direct drafts striking the birds while on the roosts tend to lower the resistance of the birds making them favorable subjects to colds and pneumonia.

The first noticeable symptoms are manifested by a watery discharge from one or both nostrils which may disappear in two or three days or it may take on a more viscid consistency, closing the nasal passages, neces-

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sitating breathing through the mouth. Many of the birds do more or less sneezing and sometimes the head is held high with gasping for breath in aggravated conditions. Along with the nasal discharge there frequently is associated an inflammation of the conjunctiva, causing a watery discharge from the eyes which also may become viscid closing one or both of the eyelids.

In a flock affected with cold, a few birds may also contract pneumonia. A bird so affected will show a dull appearance and breathing will be short and rapid, one or both of the lungs may be affected. Most cases of pneumonia prove fatal in spite of all care and treatment.

Colds and pneumonia should be considered as contagious diseases and should be handled as such. First one should seek to stop all drafts which might strike the birds especially while they are on the roosts. Also dampness of the floor and walls should be controlled. The poultry house and runs should be thoroughly cleaned, disinfected and kept at all times in a sanitary and well ventilated condition. If just a few birds are affected, they should be isolated and kept away from the healthy ones. Watering troughs and utensils should be cleaned and scalded with boiling water every day as long as birds are affected.

Medicinal treatment should consist of the administration of one of the various guaiacol compound solutions in dosage of two to four minims per bird once daily mixed with dampened oats or mash. About two or three times per week a laxative should be given consisting of one pound of Epsom salt to every one hundred mature birds.

Horton, Kansas. G. H. Mydland.

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From 50 to 200 chickens can be profitably maintained on the average American farm, provided they are given ordinary care and properly housed. Large flocks, 1,000 or more, will not be profitable unless considerable time is devoted to their care and management. Mass production in poultry as in other farm animals, requires special care and equipment.

Egg-bound, i. e., failure to pass the egg in the usual manner is of rather frequent occurrence, particularly in pullets. The cause of this condition is usually due to stricture, tumor formation or inflammation, thus reducing or occluding the lumen of the oviduct. It is less frequently caused by the formation of a double-yolked egg.

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Salt poisoning is a relatively common disseminated by the shipping of baby

Coccidiosis is widespread and an extencondition in poultry. Salt in solution is more toxic, and particularly in the form of brine, than is powdered salt. The minimum lethal dose of salt is about 4 grs. per kilogram body weight.

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The first authentic report of gapes was made by Dr. Wiesenthol in 1799. The doctor reported that the condition had been observed in chickens and turkeys on a farm near Baltimore, Md., and he further reported that the condition was caused by worms that inhabited the trachea, producing irritation and partially obstructing the air passages.

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Feather eating or feather pulling is a vicious habit that is frequently acquired by fowls, particularly during the molting season. The probable cause of this vice is improper ration, insufficient exercise and parasitism. Feather eating can usually be prevented by providing a proper ration, ample exercise and proper care to prevent parasitism.

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Egg eating is not only a troublesome habit but is also an economic problem. This habit is acquired by the accidental breaking of an egg and occurs in the heavy breeds most frequently. It occurs most frequently in those flocks that have insufficient lime salts in their ration. Egg eating is a habit that is rapidly acquired by many individuals in a flock, hence egg eaters should be isolated as soon as observed.

# Reviews and Abstracts — *Poultry Diseases*

### Poultry Disease Problems

The history of the poultry industry of Pennsylvania is perhaps typical for the average district of the country. Pennsylvania is not in the front rank in the production of poultry products nor yet in the rear. While the poultry industry has not expanded to the extent that it has in a number of other states, it has shown a rapid development, in fact a marvelous growth during the past few years. At the end of 1926 there were eighteen and three-quarter million chickens in Pennsylvania valued at $24,000,000; the increase for that year being approximately one million chickens.

As in the case elsewhere, this rapid increase in the number of chickens on the farms has for the most part occurred without proportional addition to the poultry equipment on the farm and has resulted in overcrowding of houses and runs. In addition to this intensive methods of feeding and breeding have been employed and every effort made to increase production. The result as Stubbs[1] points out is that disease is now the greatest menace to this great industry in Pennsylvania.

In the bulletin referred to, which comprises 37 pages of excellent material, Doctor Stubbs indicates his conception of poultry disease control by the following statement:

"No attempt has been made to describe methods of diagnosis or to give specific treatment. The results obtained in poultry disease work depend on accurate diagnosis. Accuracy in diagnosis and proper treatment depends on a training in the fundamental medical sciences.

"Veterinarians are trained in the fundamental medical sciences as applied to animals and poultry and are the persons best qualified to diagnose and treat poultry ailments. Proper treatment and handling the flock depends on the conditions under which the disease is occurring.

"Poultry keepers who are experiencing trouble with disease in poultry should consult their veterinarian who is trained in handling animal and poultry diseases."

A careful consideration of hygiene, Doctor Stubbs says, is a great aid in the successful treatment of any kind of live stock, but is especially important and of great value in poultry diseases. Poultry are perhaps more susceptible to errors in hygiene than any other kind of live stock.

*Water.*—An ample supply of fresh pure water is a necessary requirement for poultry. Chickens will drink more water if it is cold than if it is warm, hence the necessity for providing cold or at least cool water.

Water is subject to contamination by both inorganic and organic impurities, of which the latter is the more important although pickle or brine is very dangerous to poultry.

Of the inorganic impurities of water, disease germs, parasites and parasite eggs are the most important. The contamination comes chiefly from infected birds, carcasses of birds dead of disease, infected feces and drainage of contaminated runs or other premises.

Puddles of water may serve as breeding places for disease and are favorable to the sporulation of oocysts of coccidiosis.

*Air.*—Fowls have a complicated respiratory tract (and a high metabolic rate) and need large quantities of fresh air. Birds are very susceptible to drafts and the fresh air should be supplied them by diffusion, which is slow and requires ample intake.

*Sanitation.*—Other things being equal, the greater number of birds kept on a given area the greater the danger of disease and the sooner it will appear.

The ground surface should be even so that drainage water does not collect in pools. Open porous sandy soil with a gravelly subsoil is best for poultry yards. Wet soil

[1] Poultry Diseases by E. L. Stubbs. General Bulletin No. 453, Pennsylvania Department of Agriculture, Harrisburg, Pa.

favors parasites and much dampness is not good for fowls. Yard rotation with cultivation has a very important place in poultry production.

*Sunlight.*—Sunlight should penetrate to all parts of the poultry house. It is a purifier and a germ destroyer. The direct rays warm the house and help to keep it dry and that the poultry house be dry is essential to the health of fowl kept in it.

*Feeding.*—Fowls will not grow normally on a diet of whole grains, as corn, wheat, and oats. Such foods are insufficient to satisfy all body requirements; green food and added protein must be supplied for profitable production.

It often happens that all the fowls in a flock are subjected to the same errors in hygiene, sanitation, feeding and care and a number of them may show illness at about the same time and many may die. This often leads to the supposition that the trouble is due to infection. It is important that such conditions be differentiated from infectious disease.

*Infectious Diseases.*—The fact that fowls are kept in greater concentration than any other farm animal, and the fact that the poultry industry is increasing in numbers faster than any other farm livestock, greatly increases the danger of outbreaks of infectious diseases. When attacks occur, the flocks are decimated rapidly. The ravages from infectious diseases are enormous.

An enormous sum is invested in the domestic animals of the country. The livestock industry produces a large amount of the food of our people as well as clothing and other necessities; poultry represents in numbers, the largest class of live stock; thus anyone who has the conservation of our poultry at heart, assumes an important place in the makeup of the nation. It is a narrow view and incorrect to hold that the owner of the animal is the only one who suffers from the ravages of live stock diseases.

*Bacillary White Diarrhea.*—This is a very fatal disease of baby chicks and causes enormous losses. In mature fowl it is responsible for decreased production and lowered hatchability of eggs.

This disease is commonly introduced by infected eggs, or day-old chicks hatched from infected eggs and spread by contact. Losses start within a few days after hatching and continue for several weeks. Treatment is useless.

Prevention lies principally in the elimination of infected eggs from those used for hatching. This may be done with a fair degree of success by a serological test of the hens. Overcrowding, overheating, chilling, improper ventilation, suffocation, lice, mites, filth, dampness, lack of sunlight, impure water, inadequate diet and infectious diseases other than white diarrhea are responsible for material losses in baby chicks and should be differentiated from bacillary white diarrhea which is due to a specific infection, the *Bacillus Pullorum.*

*Coccidiosis.*—This is essentially a disease of the intestinal tract and causes enormous losses in chickens, principally between the ages of three weeks and three months. It is often called coccidial enteritis or bloody diarrhea.

The onset of coccidiosis is very sudden, the spread is very rapid and the mortality in the young very high. Prevention consists in keeping the chicks in a high state of health, maintaining them in small groups and removing the well from the sick, disinfection of discharges and of the premises and disposal by burning of those dead of the disease.

*Tuberculosis.*—The evidence indicates that avian tuberculosis is practically always acquired via the intestinal tract, contact with infected fowl and the feeding of trimmings from infected fowl being the usual sources of the infection. Avian tuberculosis constitutes a danger to other animals, particularly to hogs, associated with infected fowl.

The characteristic lesion is a nodule which degenerates to become cheesy, but not calcareous as tuberculosis of other animals. Loss of flesh, "going light" is a characteristic symptom. Treatment is useless and eradication accomplished by slaughter of all fowl on the premises including sparrows and pig-

eons, and by disinfection. The disease may be held in control by the regular disposal of all fowl when they reach the age of one year. The tuberculin test is a useful diagnostic measure and a practical control measure in certain special conditions.

*Chicken Pox.*—This disease also called avian diphtheria, and contagious epithelioma, is highly transmissible by inoculation. The cause, probably a filtrable virus, is present in the nodules and cankerous areas. It is sometimes acute, causing death quickly, at other times affected birds linger for weeks, many of them ultimately recovering. It is much the severest during the fall and winter months. It often begins as a cold and a viscid discharge is present which plugs the nostrils. The eye may be affected also and extension occurs to the larynx and the trachea. Cheesy exudations obstructing the respiratory passages are the usual cause of death.

Immunization by inoculation is of doubtful or no value.

*Roup.*—Roup is a catarrhal inflammation of the eyes, nose or mouth or all of them, canker often following. Low resistance and exposure are prime factors in the occurrence; no specific cause has been recognized.

Badly infected birds should be destroyed, the slightly affected removed from the well, good hygiene and good sanitation instituted and warm quarters free from drafts provided.

The use of biologics in the treatment and prevention of this disease must be considered as being still in the experimental stage.

*Canker.*—This disease belongs to the same group of related diseases to which chicken pox and roup belong. Canker also is sometimes called avian diphtheria and is characterized by a cheesy collection on the mucus membranes of the nose, eyes, larynx and trachea. A malignant form of it that penetrates deeply is highly fatal.

*Fowl Cholera.*—This disease belongs to the septicemia group and exhibits many of the vagaries of hemorrhagic septicemia in other animals. The lesions too are similar, bright red petechial hemorrhages in various tissues.

Infection usually occurs from the ingestion of food or water contaminated by the saliva, feces or other discharges of infected birds. The disease is often highly fatal. The organism may remain alive in the manure for long periods. Destruction of affected fowl and disposal of the carcasses by burning, disinfection of the discharges and removal of well fowl from infected premises usually promptly arrests the outbreak.

Removal of the protein from the ration and providing grain feed is a valuable aid in checking the disease. The use of biologics is of questionable value.

*Round Worms.*—Internal parasites are so prevalent among poultry that it is rare to hold an autopsy on an ailing bird and not find some of them. These parasites are capable of serious damages to the fowl. The commonest of the round worms are: *Ascaridia lineata,* the large round worm; *Heterakis papillosa,* the small round worm; and *Capillaria retusa,* a whip worm. The Heterakis is found in the cecum, the others in the intestine.

The *Spiroptera hamulosa* is a small reddish coiled worm found embedded beneath the mucous membrane of the gizzard.

The *Syngamus trachealis* (gape worm), is found attached to the mucous membrane of the trachea where it causes gapes and by obstructing the air passage and death by suffocation.

*Tape Worms.*—The poultry industry suffers great ravages from tape worm infestation which is widespread and becoming more and more prevalent. Few poultry farms do not suffer from this infestation.

Several species of tape worm infest chickens. They vary in size from the *Choanotaenia infundibuliformis,* which is sometimes 10 inches long, to the various species of Davainae, some of which are microscopic in size. Each has its individual intermediate host. The common house fly is intermediate host for the Choanotaenia, a snail is intermediate host for the Davainae. The intermediate hosts for a number of the tape worms of fowls are unknown.

*Parasite Control.*—The control measures for internal parasitisms involves the destruc-

tion of the parasites and the prevention of reinfestation, which for the round worms means keeping the chickens away from their own feces and from puddles of stagnant water. For tape worms, prevention of reinfestation involves preventing the ingestion of the intermediate host, largely insects.

This bulletin also discusses among infectious diseases, fowl typhoid, black head and European fowl pest and also external parasites. It is a bulletin every veterinarian who practices in a community where poultry is produced should have. The extracts here given informative as they are, constitute but the barest outline of what it contains.

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### Fowl Typhoid

Fowl or avian typhoid is an infectious disease of various families of birds due to a non-motile, gram-negative organisms known as *Eberthella sanguinaria* (Moore) or *E. gallinara* (Klein). The disease is widespread but not particularly prevalent. It occurs as extensive epiornithics in some localities where the poultry industry is an intensive one.

The organisms loses its virulence rapidly in artificial culture and to artificial inoculation 65% to 70% of chickens are naturally immune. The occurrence of natural outbreaks in which the mortality is much higher than 30% to 35% the maximum attained when the disease is induced experimentally has not been fully explained. The disease appears to be a filth disease, dependent upon unfavorable environment quite as much as the specific organism for the ability to run through a flock rapidly with a high mortality. It has not been found in flocks where a good sanitary regime has been enforced.

Palmer and Baker[3] in the course of a careful research into this disease, as it exists in Delaware, made some tests of the use of living avirulent organisms as a preventive of the disease. By such vaccination they were the controls to 10% in the vaccinated birds able to reduce the mortality from 35% in in one experiment and from 15% in the controls to 5% in the vaccinated birds in a second test. The results of others who have obtained similar results and in some cases greater reduction in the mortality by the use of killed organisms (bacterins) is cited.

This bulletin contains much useful information on this disease as does also the more extended discussion of the subject by Kaupp and Dearstyne[3] reviewed in the December issue of VETERINARY MEDICINE. Both bulletins should be possessed by all veterinarians giving any attention to poultry diseases.

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### Sanitary Measures for Control of White Diarrhea in Chickens

Craig[4] reports the following as a result of his observation and research into the problems of the control of bacillary white diarrhea.

White diarrhea occurs in all sections of the United States and Canada where poultry production is an important industry and is the most important infectious disease with which the poultrymen have to deal.

The greatest economic loss due to bacillary white diarrhea occurs in young chicks but this loss is materially supplemented by stunted growth, reduced egg production and lowered hatchability of eggs in the older fowl.

The infected ovary of a hen, that has passed through an attack of the disease, is the chief reservoir of the infection. Infection occurs principally in three ways, through the egg, by contact with infected chicks, and from infected surroundings. Mature birds do not contract the disease readily nor do infected mature birds (carriers) often spread the disease except through the egg.

The elimination of bacillary white diarrhea from a breeding flock depends upon two factors:

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[3] Fowl Typhoid, by C. C. Palmer and H. R. Baker. Bulletin No. 153, University of Delaware, Agricultural Expermient Station, Newark, Del. Issued January, 1928.

[3] Fowl Typhoid and Fowl Cholera, by B. F. Kaupp and R. S. Dearstyne, Technical Bulletin No. 27. The Agricultural Experiment Station of North Carolina, State College of Agriculture and Engineering, Raleigh, N. C.

[4] Sanitary Measures for the Control of Bacillary White Diarrhea, by R. A. Craig, presented at the 64th annual meeting of the American Veterinary Medical Association, September, 1927. Published in the Journal of the A. V. M. A., Vol. 25, No. 5.

1. Finding the infected birds by the application of the blood-serum test.
2. Removal of the infected birds and protection of the growing flock from infection.

Veterinary short courses for the purpose of instructing practicing veterinarians in the technic of the agglutination test and the diagnosis of important communicable diseases of poultry have been held in Indiana annually or oftener since 1924.

Two hundred and fifty of the practicing veterinarians in Indiana have attended these courses from one to six times. During the past season 60 of these veterinarians tested flocks for white diarrhea, testing from a few thousand to 23,000 birds each. A number of others collected blood samples and had the test made by some laboratory.

The infection in these flocks averaged 20 per cent on the first test, 12 per cent on the second, and 9 per cent on the third test. In very few flocks was no infection found.

Much of the success of the measure depends upon the poultryman. If he removes the reacting birds and practices good sanitation, the quality of the eggs for hatching is much improved and the work is economically profitable. If he does not remove the reacting birds, and clean up the infection about his premises, the results, as would be expected, are not good.

The poultrymen in Indiana who have undertaken this plan for the control of bacillary white diarrhea favor it, and because it gives them a better market for eggs for day old chicks and for breeding birds, continue it. There are a large number of hatchery men who do not believe in testing breeding flocks for the purpose of controlling white diarrhea; regarding excessive loss of brooder chicks as being due to faulty management.

Our interest in the blood-serum test for the diagnosis of bacillary white diarrhea is largely educational. Poultrymen do not realize the economic importance of this disease, and we cannot expect them to cooperate in a serious effort to eliminate pullorum infection from breeding flocks. This plan of interesting veterinarians in the control of bacillary white diarrhea is the one that is generally followed in the control of several common infectious diseases of farm animals.

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### Fowl Cholera

This destructive disease of fowl has been known to veterinarians for more than 200 years. It is known wherever poultry raising is carried on. The causative organism, *Pasteurella avium,* was discovered by Pasteur in 1880. It is one of the hemorrhagica septicemia group and was the organism on which Pasteur carried out his first fundamental experiments in the attenuation of bacterial cultures. The experiments that led to the production of anthrax vaccine and blackleg vaccine and biologic preparations for immunizing against disease that have been produced right down to the present time.

Fowl cholera was studied by Salmon in 1880 who at that time thought the losses from it might be as high as $20,000,000 annually. However, as fowl typhoid had not been recognized at that time, it was probably that a part of the losses charged to cholera were from typhoid; which is the more prevalent of these diseases in most countries, although in large sections of the United States, the west and middle west particularly, fowl cholera is regarded as more common and more destructive than fowl typhoid.

Intensive poultry culture and bad sanitation seems to have much to do with the appearance of this disease. Poor ventilation, overcrowding, filth, exposure, sudden changes in the feed, all contribute the prevalence and destructiveness of fowl cholera. All fowl, barnyard, water fowl and wild fowl are susceptible.

The course of the disease is extremely rapid in many outbreaks, and particularly at the beginning. Birds often succumb in 12 to 24 hours, those that live longer develop a diarrhea, a tendency to sit bunched up with

the head drawn in against the body, the comb and wattles become bluish red and there is complete inappetence.

No lesions may be found on auotpsy of birds dead of acute attacks of cholera. In the less acute, there are hemorrhages on the heart, the peritoneal surfaces of the liver and many other organs. If the disease has lasted long enough for diarrhea to supervene, there is enteritis and the intestinal content is very foul smelling.

According to Kaupp and Dearstyne[5] fowl cholera may be controlled through sanitation, isolation or destruction of suspects, safe disposition of carcasses, disinfection of the drinking water and the prohylactic use of bacterins. The immuinty produced by bacterins is of unknown duration.

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### Coccidiosis of Poultry

According to Graham and Tunnicliff[6], coccidiosis, coccidial enteritis or bloody diarrhea is a fatal disease of chickens on many farms in Illinois. It is widespread over the country, the greatest losses from it occurring in chicks four weeks to six weeks old. In infected flocks 25% to 50% and sometimes up to 100% of the chicks die. Pullets are more resistant, in them the disease spreads slowly and runs a chronic course. Mature birds seldom suffer materially from coccidiosis.

The organisms causing this disease in chickens, *Eimeria avium* or *Coccidium avium,* may survive for long periods, certainly many months in the soil of chicken lots and brooder pens and become the source of new outbreaks. Damp soil favors the coccidia and the disease is more severe in rainy weather. Poorly drained lots and particularly small pools of mud and stagnant water favor the survival of the organism.

The development and multiplication of the coccidia which are animal parasites, take place in the epithelial cells of the intestinal mucus membrane.

*Symptoms.* Chicks affected with coccidiosis have a full crop but appear unthrifty, move slowly, or isolate themselves. Diarrhea is common. The feces may be tinged a reddish brown or be streaked with fresh blood. Or the blood coming from further forward in the intestine may give the feces a dark or black color. In advanced stages, the chick sits quietly on the ground with wings drooping and eyes closed. They move with difficulty and unsteadily. In older chickens there is unthriftiness, failure to gain, loss of weight, emaciation and chronic diarrhea.

*Control:* Good sanitation, obviates most of the danger from chronic coccidiosis and usually stops its spread when introduced into a flock. A thorough cleaning of brooders, houses and incubators is the best insurance against outbreaks of this disease. As some hens that have recovered from the disease are carriers of the coccidia and excrete it in their feces, young chicks should be protected from this source of infection by being kept from lots, runs, houses, etc., to which mature chickens have access.

In an outbreak among young chicks, all affected chicks should be killed and burned as soon as discovered and the floors, feeding and watering utensils should be scrubbed and disinfected daily. Keep the chicks in a warm, clean, dry, well ventilated, well lighted place, and avoid sudden changes in the feed other than to feed largely sour milk or butter milk (semi-solid) when the disease is present in a flock.

One pound of Epsom salt to 400 chicks, four to six weeks old mixed, in sufficient mash for one feed is recommended for exposed birds.

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### CORRECTION

Through an omission in the last paragraph on page 218 of the May issue, the statement is rendered ambiguous.

Doctor Ackerman uses in the conditions described, a mixture of mercuric bichlorid and sulphocarbolates compound, 1 to 10. The preparation is dispensed in powder form and is administered one level teaspoonful to two quarts of the drinking water.

[5] Fowl Typhoid and Fowl Cholera by B. F. Kaupp and R. S. Dearstyne. Technical Bulletin, No. 27, The Agricultural Experiment Station of the North Carolina College of Agriculture and Engineering, Raleigh, N. C.

[6] Coccidiosis of Poultry by Robert Graham and E. A. Tunnicliff. Circular No. 288, University of Illinois Agricultural College and Experiment Station, Urbana, Ill.

## FORTIETH ANNUAL MEETING IOWA VETERINARY MEDICAL ASSOCIATION

What was considered by all present the best all-round meeting of the Iowa Veterinary Medical Association was held at the Savery Hotel, Des Moines, Jan. 17-19 with Clinic at Ames Jan. 20. Registration was required to gain admission again this year and showed an attendance of about 400. There were also in attendance over 80 members of the Ladies' Auxiliary. Mrs. Peter Malcolm was re-elected President, and Mrs. J. A. Barger was re-elected Secretary. The banquet was attended by about 375. County agents, representatives of the farm press and farm organizations, and prominent state officials were guests at the banquet. The outstanding feature of the banquet was the apparent good fellowship between the county agent and the veterinarian.

Thirty-five new members were elected and the officers chosen for the ensuing year were: President, J. C. Glenn, Norway; First Vice-President, S. K. Hazlet, Oelwein; Second Vice-President, Henry Hell, Wilton Junction; Executive Committee, N. J. Deiling, Dallas Centre; Guy Jones, Lohrville; C. J. Scott, Knoxville, Secretary-Treasurer.

The program included the following papers: Swine Diseases, by Howard C. H. Kernkamp, St. Paul, Minn.; The Male Hog, by B. H. Brooks, Riverton; Problems Met in Feeding Commercial Feeds, by T. G. Fultz, Pella; Some Observations on "Flu" in Swine, by N. J. Deiling, Dallas Center; paper by Chas. N. McBride, Special Investigator Swine Diseases, B. A. I., Research Farm, Ames, Iowa; Abortion Disease, by C. P. Fitch, St. Paul, Minn.; Abortion Disease and the Practitioner, by L. P. Scott, Waterloo; Sheep Practice, by Alonzo Goode, Milo; The American Veterinary Medical Association, by H. Preston Hoskins, Detroit, Mich.; Handling Reactor Cattle, by H. Busman, Chicago, Ill.; The Practitioner in Arena Work, by J. A. Spence, Clinton; Paratuberculosis (Johne's Disease), by B. A. Beach, Madison, Wis.; Small Animal Therapeutics and Practice, by Chas. W. Bower, Topeka, Kan.; Tetanus in the Dog, by F. F. Parker, Des Moines; Strongylosis of the Horse, by Guy Jones, Lohrville; Some Case Reports, by O. N. Schultz, Latimer; Poultry Disease Situation in Iowa, by S. H. McNutt, Ames; Baby Chick Trouble, by N. W. Ackerman, Van Horne; Bacillary White Diarrhoea, by B. A. Beach, Madison, Wis.; Avian Tuberculosis, by Elmer Lash, Des Moines; Diseases of the Head and Respiratory System of the Fowl, by Chas. Murray.

The Clinic at Ames consisted of the following demonstration:

Poultry:

1. Anatomical Demonstration of Sinuses and Air Sacs of the Fowl, by H. L. Foust.

2. Administration of parasiticides to Birds and detection of Internal Parasites by Autopsy, by E. A. Benbrook.

3. Demonstration Gross Lesions of Fowl Typhoid, Cholera, etc., by Chas. Murray and S. H. McNutt.

Small Animals.

1. Debarking Operation.
2. Operations to correct Tail Defects.
3. Oophorectomy.

Large Animals.

1. Roarer.
2. Fistula of the Withers.
3. Enucleation of the Eyeball.
4. Inguinal Hernia.
5. Prolapsed Rectum and Vagina.
6. Oophorectomy in Heifer.
7. Demonstration of the use of the Emasculatome.

C. J. Scott, Secretary.

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## HORSEFLIES OF SOUTHWESTERN TEXAS YIELD TO PARASITES

Horseflies, troublesome pests of cattle and horses in southwestern Texas, are not so numerous as they once were, says the United States Department of Agriculture. The decrease is largely due to the artificial distribution and establishment of a parasite discovered in 1914 by department investigators.

For a number of years prior to 1913 stockmen whose ranches lie along the south escarpment of the Edwards Plateau, north of Uvalde, Tex., experienced considerable trouble from the attacks of horseflies on their cattle and horses. During the summer of 1913 a rather severe outbreak of anthrax occurred in the region. Circumstantial evidence indicated that the horseflies played a part in transmitting the disease, and a study of their control was considered of distinct economic importance.

Soon after the study was begun in 1914 an egg parasite was found which was later described as a new species, Phanurus emersoni. In some instances masses of horsefly eggs were found to be practically all naturally parasitized. Such eggs were collected, placed in vessels which would allow the parasites to escape but which would retain the horsefly maggots and these vessels were distributed along the streams or natural breeding grounds of the horsefly. Ranchmen followed the suggestions of the investigators and also collected horsefly eggs and allowed the parasites to go free, with the result that the region so treated showed a general decrease in the number of horseflies in 1915, which was estimated to be 50 per cent greater than in areas not treated.

The investigators distributed the parasite over the region where the canyon horsefly is most troublesome. A recent check-up on the results brings forth the conclusions: That there has been a general decrease in the number of horseflies in the region since 1914; that the parasite *Phanurus emersoni* has been a potent factor in the control of the horseflies; that it does its best work during seasons of abundant sunshine; that it is now generally established over the region where the flies breed; and that the rearing and dissemination of the parasite, together with the collecting of the horsefly egg clusters, is a feasible method of controlling this pest.

## CONFERENCE ON BACILLARY WHITE DIARRHEA CONTROL

The first annual meeting of the New England Conference of Laboratory Workers in Bacillary White Diarrhea Control was held in Paige Laboratory, Massachusetts Agricultural College, Amherst, Mass., April 24, 25, and 26.

This conference was probably the first of its kind to be held in the United States, and was of the nature recommended for studying problems on standardization of testing methods, cooperative tests, etc., in the report of the Poultry Disease Committee of the U. S. Livestock Sanitary Association at its 31st annual meeting, held at Chicago, November 30, December 1 and 2, 1927.

The states cooperating and their representatives were: Connecticut, Dr. L. F. Rettger; Maine, Dr. F. L. Russell and Professor E. R. Hitchner; Massachusetts, Dr. W. R. Hinshaw, Dr. E. F. Sanders, and Dr. N. J. Pyle; New Hampshire, Dr. E. M. Gildow; and Vermont, Professor A. W. Lohman.

Probably the outstanding accomplishment of this conference was an agreement to standardize as far as possible the agglutination tests used by the states represented. The test fluid to be used in the future by these states will be standardized as to turbidity, pH value, strains of organism, age of culture, examination of culture for purity, preservative, storage, maximum age, and testing of fluid for antigenic properties.

In regard to the strains of organisms to be used for making the antigen, each laboratory will furnish one strain to each of the other laboratories, all of the strains to be pooled so that each laboratory will be using identical test fluids. It was decided that among these five strains some should be of the organism isolated from hens and some from chicks. It was also agreed that each laboratory should test its strains and choose the best agglutinating, typical, aerogenic strain to send to the other states.

Plans were made by the laboratories to make the following cooperative experiments during the coming year, to be reported at the next annual meeting: the use of sodium hydroxide in test fluids to prevent cloudy reactions; the age at which pullets can be tested; and the use of the "rapid" method of testing for checking atypical reactions and hemolyzed blood samples.

It was decided to hold annual meetings, the date and place of the next one to be announced later.

The laboratories represented reported the following totals for the past season:

| | Total Flocks Tested | Flocks 100% Tested | Total Free Flocks* | Total Tests Made |
|---|---|---|---|---|
| Connecticut | 144 | 101 | 78 | 102,319 |
| Maine | 179 | 135 | 73 | 79,000 |
| Massachusetts | 320 | 162 | 139 | 232,091 |
| New Hampshire | 159 | 91 | 94 | 79,539 |
| Vermont | 59 | 59 | 14 | 17,600 |
| Totals | 861 | 548 | 398 | 510,549 |

*No infection for one or more years.

Wednesday, April 25, the laboratory workers held a joint meeting with the New England livestock sanitary officials for the purpose of discussing accreditation of poultry. At this meeting the principal speakers were Professor F. J. Sievers, Director of the Massachusetts Agricultural Experiment Station, Mr. O. S. Flint, Manager of the Massachusetts Association of Certified Poultry Breeders, and Professor J. E. Rice, Head of the Poultry Department of Cornell University.

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## ONTARIO VETERINARY GRADUATES

The Spring examinations of the Ontario Veterinary College, Guelph, Ontario, were completed on April 28th, 1928, with the following results:

The degree of Bachelor of Veterinary Science was conferred on April 30th at a special convocation of the University of Toronto on eighteen graduates as follows:

Joseph T. Akins, Milton, Ontario.
Wilmer L. Bendix, Dumbarton, Virginia.
James C. Carey, Millgrove, Ontario.
Miss E. B. Carpenter, Detroit, Michigan.
Clyde Dohner, Mishawaka, Indiana.
Samuel P. Giebelhous, Stony Plain, Alta.
Charles E. Goodwin, Pubnico, Nova Scotia.
William L. Grubb, St. Paul, Minnesota.
Anthony A. Kingscote, Cowichan, B. C.
John R. Martell, Guelph, Ontario.
F. Midwinter-Steane, Guelph, Ontario.
Geoffrey S. Muir, Toronto, Ontario.
Robert C. Pannell, Staunton, Virginia.
Edward F. Peck, Oyen, Alberta.
Percy J. G. Plummer, St. Catharines, Ont.
Harland R. Potter, Stamford, Ontario.
Harold A. Webb, Guelph, Ontario.
Arthur A. White, Huntingdon, Quebec.

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## DE VINE SAYS:

Be a good business man as well as a good professional man.

This combination is in no way incongruous.

Get your statements out regularly.

This means the first of each month, the same as every business man does.

Itemize your statements so it is not necessary for your clients to ask questions or for you to explain.

In collections learn to deal differently with the four principal classes of those who may owe you.

The business man wants his bills promptly.

The careless man should have his bills promptly.

The middle man won't take offense if he gets his promptly.

The way to learn about the dead beat and keep square with him is to see that he gets his bills promptly and pays promptly, or gets no service.

The fellow who owes you and is naturally dishonest is always a knocker.

Make him pay you and find someone else to knock.—J. F. DeVine in the *Practitioners Bulletin.*

# MATTERS OF CURRENT INTEREST

## MISSOURI VALLEY MEETING POSTPONED TILL NOVEMBER

The Missouri Valley Veterinary Association meeting, which is usually held in July, has been postponed until November. The meeting will be held at the same time as the American Royal Live Stock Show in Kansas City. The postponement was made by the executive board on account of the American Veterinary Medical Association meeting in August in Minneapolis.

The date of the American Royal Live Stock Show in Kansas City appears to be a very favorable time to hold the Missouri Valley meeting, for many veterinarians attend this live stock exhibit every year and the railroad rates of a fare and a third for the round-trip, for practically all the Missouri Valley territory will prove a very decisive inducement for the attendance of members living at a distance.

E. R. Steel, Secretary.

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The Missouri Veterinary Medical Association will hold its next annual meeting June 26-28, at Carthage, in the heart of the Ozarks. An extensive and diversified clinic will be a principal feature of the meeting, which is expected to attract a large attendance not only from Missouri, but from Southeastern Kansas, Northeastern Oklahoma and Northwestern Arkansas, also.

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The city council of Houston, Texas, recently enacted an ordinance creating a Humane Department as a sub-department of the city health department and placed it in charge of the city veterinarian. J. A. Phillips is the city veterinarian.

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Alex Eger, "the only exclusive veterinary book publishers in the world," left Chicago April 19th, and will sail from New York on the 25th for a trip to his old home in Czecho-Slovakia, and to visit his brother, who lives in Budapest. Mr. Eger is accompanied by Mrs. Eger and their daughter Jane. They will be gone from Chicago about three and one-half months, visiting en route England, France, Switzerland, Italy, Austria, Czecho-Slovakia, Germany, Holland and Belgium.

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The seventh annual veterinary conference held by the veterinary division of the Kansas Agricultural College at Manhattan, February 8 and 9, attracted an unusually large group of Kansas veterinarians. The program was arranged in a manner to appeal particularly to practitioners, and it was carried out in every detail.

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The fourth Mid-Western States Tuberculosis Eradication Conference was held at Sioux City, Iowa, April 26 and 27, 1928. Many prominent speakers addressed this conference, which was one of the best ever held on tuberculosis-eradication work. Avian tuberculosis was given a prominent part on the program. A new feature was the broadcasting of each afternoon program.

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Sheep scab is on the increase in Michigan, according to State Veterinarian Killham. The Michigan laws governing the importation of sheep are inadequate for the protection of the industry from scab and as a result it has become firmly established in several localities. Veterinarians are urged to make early diagnosis of this ailment and to advise dipping.

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W. H. Stewart, aged 90, Maynard, Iowa, died April 16, 1928 of heart disease. Mr. Stewart had lived in Fayette County, Iowa, since 1855, and he and Mrs. Stewart, who survives him, had recently celebrated their 64th wedding anniversary. He is survived by seven children, two of whom, Walter C. Stewart, New Hampton, Iowa and Dale B. Stewart, South St. Paul, Minn., are veterinarians.

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John S. Nicholas, aged 39, died March 21, 1928, at the University of Virginia Hospital, Charlottesville, of peritonitis following an operation for appendicitis. Doctor Nicholas was graduated from the United States College of Veterinary Surgeons in 1916. He was commissioned in the Veterinary Corps and served in France during the World War, following which he was engaged for a time in tuberculosis eradication work in Virginia and later served as assistant professor of Veterinary Science at the Virginia Polytechnic Institute. This position he resigned to enter practice in Charlottesville. He is survived by a widow and three small children, a daughter and twin sons. Doctor Nicholas was resident secretary of Virginia for the A. V. M. A. and a former president of the Virginia Veterinary Medical Association.

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## LOCATIONS FOR VETERINARIANS IN NORTH CAROLINA

The North Carolina Veterinary Medical Association through its secretary W. T. Scarborough has undertaken measures to induce additional veterinarians to come to the Old North State. There are at present 22 towns and cities in North Carolina without a veterinarian, where it is believed a practitioner would do well. A letter has been sent by the secretary of the association to the deans of all the veterinary colleges, asking them to bring the advantages of North Carolina as a location for veterinarians to the attention of their senior students.

Looking into the future, Doctor Scarborough has written to the 530 accredited high schools in the state in the name of the state veterinary association, pointing out the opportunities that the veterinary profession offers to young men, and urging high school graduates to investigate these possibilities with a view to attendance at some of the veterinary colleges.